The Week

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Reforming PhD appeals

Much of the reaction to the Leverhulme final report has concentrated on the plan to replace three-year honours degrees by two-year ordinary degrees as the basic building block of undergraduate education. Much less attention has been paid to the report's proposals for the reform of postgraduate courses. Yet there is a strong case for saying that such reform is even more urgent, more especially at doctoral than master's level. The PhD as it is practised in Britain has at least as many skeletons in its cupboard as the honours degree.

The criticisms of the PhD are well known – inadequate supervision leads to poor completion rates, neglect of proper research training leads to frustration for candidates, the famine of scientific and scholarly jobs means that PhD holders have been lured into an occupational dead-end. The Leverhulme report's proposals try to tackle these difficulties at two levels, by improving the operation of the PhD in its present form and by suggesting a redirection of the degree so that it is no longer so exclusively an apprenticeship for an academic career.

This second task is more radical and so more controversial. There will be many doubts and objections if the proposal is to create an American-style PhD which is widely if not always accurately regarded as inimical to the development of proper intellectual independence. But the first task should be put in hand immediately. The problem of poor completion rates has already received a lot of publicity as a result of the Swinnerton-Dyer report. But it is nearly always a symptom of deeper problems, inappropriate selection, poor supervision, an absence of counselling and guidance.

Those same problems nearly always play a prominent part in the sad cases in which candidates fail to be awarded their PhDs even though they submit their theses. It is too easy to dismiss those who complain about their rejection as difficult or possibly eccentric. Some may be. But recent cases have exposed the disturbing fact that some universities have no effective means of appeal. Even more disturbing is the fact that in many cases PhD students are inhibited from protesting about poor supervision because those to whom they should complain are their supervisers.

In many universities such appeal procedures may appear a peripheral matter, pandering to eccentric malcontents who refuse to accept the verdict of the examiners. But not only is it important for the integrity of the university that such procedures should be unambiguously fair but their neglect may indicate a more broadly lax attitude to the needs of research students.

Raising educational standards

There may be an element of wishful thinking in the Leverhulme inquiry's call for universities and polytechnics to raise their entrance standards just when higher education is poised at the threshold of a demographic trough which is expected to sharpen the competition for students. Yet there may be some cause for optimism. In the United States, where the self-interest of higher education institutions is bound even more intimately to student numbers, universities appear to have begun an aggressive drive to stiffen their entrance requirements.

In a survey last year, the National Association of Secondary School Principals concluded that the United States was experiencing a significant shift in university entrance requirements. A majority of states, some 27 in all, had already revised their admissions standards upwards or were about to do so. Typically, state universities were beginning to insist that high school leavers looking for entry to higher education should be minimally competent in English, maths and a foreign language. Courses taken in school in soft subjects like "bachelor living" or car maintenance would no longer count towards getting a place at university.

What is remarkable about this trend is that it has coincided with a period in which many universities – particularly the less selective private institutions – are being forced to compete desperately for new students or face the real prospect of going out of business. The reasons for the competition are partly demographic. The United States, like Britain, is experiencing a deep fall in the number of 17-year-olds in the population. The private institutions depend on a steady influx of new students to bring federal dollars, in the form of government grants and loans to students, into their institutions. As student aid has become scarcer, a larger proportion of students has started to opt for the lower fees of state universities.

For threatened institutions, the natural response to this phenomenon would appear to be a reduction in entrance requirements, yet there is little evidence that this has happened. The reasons for the apparent paradox are instructive. One explanation is that in the fluid institutional hierarchy of American higher education, there is a long tradition of lesser colleges imitating the elite institutions.

In the elite institutions, which are relatively free from worries about a diminishing pool of applicants, there has been growing concern in recent years about the poor educational preparation of entering students. It has come as a shock to those highly selective universities that many now students require remedial teaching in academic basics like mathematics and written English. The result, in institutions as different as Berkeley and Stanford, has been a new insistence that applicants master the basic academic skills at high school.

Given the pervasive influence of the Ivy League, it is far from easy for the second rank institutions to shrug off the example of the major universities. But there is a less high-minded reason for their compliance with the new standards. Most struggling colleges have found that even in the new market conditions created by the imminent shortage of young people, students themselves are becoming more discriminating consumers, less likely than in the early 1970s to settle for mediocre courses in mediocre institutions.

As a result, colleges anxious about their ability to maintain student numbers have taken the view that the very worst thing they could do is gain a reputation for academic sloppiness. Quality rather than accessibility is regarded as the key to survival of marginal institutions.

There is perhaps a lesson here for Britain. Universities which respond to the decline in the number of 17-year-olds by lowering their entrance requirements may damage their own interests as much as they damage the overall standing of higher education. They will also be sending precisely the wrong kind of message to the secondary schools. It would, of course, be absurd in the British context to turn away school-leavers clamouring for further and higher education at a time when substantial parts of the higher education system may be forced to operate well below their capacity. The answer is not to depress the standards of degree education, but to use the "idle" capacity to develop imaginative new forms of further education to meet the needs of those who are not yet ready to study at an advanced level. What is good for educational standards and what is good for the universities may turn out to be the same thing.

Melina Mercouri's marbles

The debate about Greece's claim for the return of the Elgin marbles is easy to reduce to amusing, even rather patronizing, caricature. This is especially so when the most prominent claimant on behalf of Greece is its minister of culture and former film star, Melina Mercouri. But it is wrong to dismiss the claim without serious consideration, partly because the repatriation of art is likely to be an infectious idea and partly because over the past 300 years the terms of this particular trade have been so overwhelmingly in Britain's favour for reasons that are not always easy to defend. So Miss Mercouri could be starting a fashion that might empty the British Museum and the National Gallery.

The main objection to the Greek claim is that it is based on a sense of "ownership" that is hardly appropriate in the case of works of art. This has two more detailed aspects. The first concerns continuity. It is not clear that because a particular work of art was produced in a particular geographical area hundreds or even thousands of years ago that the modern state which now occupies that territory has an uncontested claim to "own" it. In what sense is the modern Greece of Mr Papandreou and Miss Mercouri the legitimate successor to the Athenian republic of Pericles?

Perhaps a reasonable case can be made out in this instance, but it would be a controversial one nevertheless. Foreign scholars are much more sceptical of the continuity of Hellenic culture than the Greeks themselves. But is it sensible to regard modern Italy as the world-wide title-holder to the art of the Roman Empire? After all, many Roman emperors were Spaniards or Tunisians or Yugoslavs (if we must adopt misleading modern designations that ignore the migrations of the last 2,000 years).

The second aspect of "ownership" is less straightforward. Almost by definition, a work of art especially one of the quality of the Parthenon frieze belongs not to a particular nation or state but to the whole of humanity. For its status is intimately related to a recognition of qualities that transcend the particular and approach the universal. This, of course, does not imply that the genius of a particular nation be devalued. But it does perhaps mean that no single nation can claim sole proprietorship of such a work of art.

The implication therefore is that the best place to display a work of art is where it can be most accessibly and safely displayed in association with other objects that provide a suitable context. This may sound like a coded argument for keeping the Elgin marbles in the British Museum. Perhaps it is – at present. For at some time in the future the same argument could be used to support the creation of a fully comprehensive museum of the Parthenon in Athens. Moreover it is an argument that imposes heavy obligations on the British Museum in turn. If the museum is not to be regarded as the proprietor of the treasures it contains but their custodian on behalf of a public that extends far beyond Britain, then it is clearly inappropriate over again to contemplate charging for admission.

Laurie Taylor

(Heriot-Watt University has launched a degree to be taught entirely by video, THES, May 27.)

Everyone ready? Let's go for a take then. *Second Year Linguistics. Lecture Three.* Right, Professor Lapping. We're rolling.

Good morning.
Cut. Erm. . . Professor Lapping. . . I know it's morning now but we can't actually guarantee that it will be when the student plays the tape . . . so perhaps something a little less specific. OK?

Oh yes. Fine.
Right. From the top. *Second Year Linguistics. Lecture Three. Take Two* And . . . we're rolling.

Greetings. Let us have a look at what Chomsky meant by transformational grammar. Take a simple sentence. The chicken . . . crossed . . . the road. And now let us apply . . . our transformational rules.
Cut. Professor Lapping, that's very good – really very good – but I wonder if we're missing out a little on pace. Do we need to have quite so many pauses? That first one, for example, after you say – now, where is it? – ah yes – where you say "the chicken". Do we need such a big pause there?

But that's the moment when I lean forward over the piano.
Yes. Quite so. And, as I've said before, I'm quite happy with your idea of the piano – and indeed your suggestion that you should lean over it – but could it be done a little less – how might one put it – languidly?

Well, I'll try.
Jelly good. And while we're at it – if you could wait until the end of the sentence before stubbing out your cigarette. At the moment, you're doing it after you've said "And now let us apply" and again that rather holds matters up. Nice dramatic effect, of course. But just a trifle slow. All right? Excellent. On we go. *We're rolling.*

Let's start with a negative transformation. "The chicken did not cross . . . the road." And a negative and interrogative: "Didn't the chicken cross . . . the road?"
Cut. Yes, that's fine, Professor Lapping. Very good. Nice and straightforward. But again the question for timing. I know we've agreed that you should pour yourself a tumbler of whisky after saying "negative and interrogative", but could we leave out the actual drinking till after the next section – what is it? – you know, the passive bit "The road was crossed by the chicken" – that bit?

Well, I really do think we need some dramatic emphasis . . .
I think we'll have to risk that, Professor Lapping. And while we're at it, just two other little points – lighting have asked me if you could possibly not wear the same suit for tomorrow's filming – it's just that they're having to use rather a lot of filters to take out the dazzle from all the white.

Oh, right.
And one other teeny thing.

Yes.
Well, I was wondering if you might not make things a little easier for yourself if you put the teddy bear down while you were actually talking. Just a suggestion.

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What price immortality? – £500,000

by Olga Wojtas
Scottish Correspondent

Edinburgh University is planning a dramatic addition to the things money can buy, with an offer of immortality for only £500,000.

A confidential document approved in principle by the university court outlines an American-style fund raising scheme which will tap the university's "immense reserves of status and goodwill."

The working group of the university development fund campaign ("We do not want an appeal. Appeals tend to sound geriatric, down on their luck, and usually of modest scale and finite purpose") proposes that individuals donating more than £500,000 should be styled Benefactor of the University with either their portrait or bust exhibited in a hall of benefactors with the promise that "their fame will survive them, that their immortality is assured."

Before they achieve immortality, as long as their numbers are small, they will be guests of honour at an annual dinner where "their achievements and benefactions will be relived and their generosity and link with Edinburgh kept ritually alive."

For those of more modest means, the document suggests membership of the Principal's Circle for a contribution which though high enough to discourage "trivial opportunism" is not so high as to "expose the principal to the criticism that he was surrounding himself solely with corporate, commercial interests."

Members of the circle, which must be accessible to former graduates in mid-career, may enjoy free university parking, membership of the staff club, and invitations to social events also graced by benefactors, senior members of the university and "witty raconteurs."

Anyone contributing to the campaign will become a Friend of the University for a minimum period of three to five years, with an inscription in a Book of Friends, Christmas card, and a tie ("or an article suitable for lady donors").

The document proposes a number of projects to be funded through the campaign, including buildings for the artificial intelligence department, posts for the institute for advanced studies in the humanities, a chair in the history and culture of the Reformation, and posts for a research centre for the social sciences.

Funding tops Sir Keith's agenda

by Ngaio Crequer

New approaches to university funding and planning were being considered this week by the Government and the University Grants Committee following the Conservative victory at the polls.

The Department of Education and Science confirmed that the meeting between Education Secretary Sir Keith Joseph and the vice chancellors of Aston, Salford, Durham, Reading, Leicester and Strathclyde about privatizing some universities, would take place soon.

And the University Grants Committee, in its first post-election meeting, decided yesterday on what advice to give the Government on how to formulate a long term plan for higher education, which could reshape the universities and increase cooperation with the public sector.

The meeting between Sir Keith and the vice chancellors about possible new ways of funding some universities was cancelled when the election was called. Now it is being given every priority in the department and the vice chancellors have been asked for an early date.

He wants their views on a scheme (outlined in *The THES*, May 20) in which some universities would get a single budget containing their own and their students public funds and would be able themselves to fix student targets, fees, salary levels, and own their capital assets.

The UGC met to consider its response to Sir Keith's guidance letter of July 14 1982 when he asked them for their views on how a longer-term view of higher education needs and provision might best be developed; how cooperation and the exchange of information between the UGC and the National Advisory Body can best be pursued; what the priorities in the universities should be in specific areas of science and technology and the problems caused by limited opportunities for recruitment.

He told them that a long-term view of higher education which will involve the post-contraction period and the 1990s, would consider questions such as the length and intensity of courses, the balance between undergraduate and research provision, the role of non-UGC funding, both governmental and private, and the scale of university provision.

Although the privatization move by Sir Keith was not formally on yesterday's agenda his views have not gone unnoticed. A number of papers examining the nature and approach of the universities and exploring different methods of funding are being prepared for the UGC's two-day conference in the autumn.

Their reply, which they have been considering for a year, keeps mainly to the procedure which might be adopted for forming a national plan, rather than to issues of substance. Options canvassed include another round of "dialogues" with the universities, as in 1980, but possibly on a group basis because they are so time-consuming.

The sub-committees may take on a more strategic role and the UGC is concerned about keeping its data up-to-date. They suggest working closely with the NAB possibly first examining some of the boundaries between them.

But they will also tell Sir Keith they need a firm planning horizon from him if a rational plan is to emerge. The meeting is also likely to discuss how the "new blood" programme will work in future and they may decide to change the proportions of the different subjects. The vice chancellors have told the UGC they want more arts and social science places and they hope this is not the new way of funding the universities.

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Brooke heralds DES change of style

by John O'Leary

A rapid change of style in Government direction of higher education was signalled this week with the appointment of Mr Peter Brooke as under secretary with responsibility for the sector.

Although Sir Keith Joseph, to the surprise of many, remained as Secretary of State for Education and Science, none of his four departmental ministers retained their posts. Three moved to other departments and Mr William Shelton, who had responsibility for science and youth training, lost his place in the Government.

With the arts ministry moving out of the Department of Education and Science and Mr Shelton not being replaced, the number of ministerial posts was halved. Both Mr Brooke and Mr Robert Dunn, who takes charge of schools and teacher education, were given the rank of under secretary.

An announcement on detailed ministerial responsibilities was delayed while Sir Keith considered taking personal control of non-advanced further education; Mr Brooke, a 49 year-old former Government Whip and MP for the City of London and Westminster South, was expected to be responsible for science as well as higher education.

Mr Brooke, a graduate of Balliol College, Oxford and the Harvard Business School, regards himself in the centre of the Conservative Party and is generally well-liked by his colleagues. He was vice president of the National Union of Students in 1955-6 and is a former Swiss correspondent of the *Financial Times*.

However, he has had no close involvement with educational matters and observers say that he lacks the flair of his predecessor, Mr William Waldegrave, who has gone to the Department of the Environment.

Mr Brooke will be reestablishing two former links in his new post. The more welcome will be with Mr David Hancock, the new permanent secretary at the DES, who was a contemporary and friend at Balliol. The other will be with the Shadow Education Secretary, Mr Neil Kinnock, against whom he lost his deposit in the general election of 1974.

Election defeats also left vacancies for the Labour Party's higher education spokesman, a post formerly held by Mr Phillip Whitehead, and chairman of the Education Select Committee, previously Mr Christopher Price.

The new Scottish Office minister for industry and education is Mr Allan Stewart aged 42, a former lecturer in political economy at St Andrews University and former director of the Confederation of British Industry in Scotland.

A monetarist, Mr Stewart held office in the last government as Scottish minister for health and later Scottish minister for home affairs.

In Northern Ireland, Mr Nicholas Scott will continue as the under secretary for education, allowing him to see through the creation of the University of Ulster and Mr John Stradling Thomas continues to be responsible for education in the Welsh office.

The election has overall filled the House with 76 lecturers and teachers, according to Mr Byron Criddle of Aberdeen University, an analyst of election candidates and MPs.

Mr Brooke: centrist?

There are 20 university lecturers, and 20 college and polytechnic lecturers in the House, together with 36 school teachers. Labour has the most lecturers at 29, the Tories have nine, the Liberals and Plaid Cymru one each. All this from a start where teaching was the most popular profession among candidates, and the Social Democrats with notably the highest number of teacher candidates but none elected.

Brighton is favourite poly

by Karen Gold

Brighton is Britain's most popular polytechnic for students of vocational subjects, according to survey figures to be published next week.

On the basis of the highest ratio of applicants to places in 21 vocational courses in all United Kingdom polytechnics, Brighton emerges as a clear leader. Leeds and Trent come second, Portsmouth and Sheffield equal third, and five in fourth place: Birmingham, Bristol, Leicester, Oxford and Sunderland.

The figures are in *Survey of Polytechnic Courses in England, Wales and Northern Ireland*, a guide to would-be students written by South Bank Polytechnic careers adviser Mr Eric Whittington, and published on Monday. It includes the number of places and applications in 1982 for most subjects, as well as the A level grades needed for each course.

Mr Whittington said "It's not meant to be a kind of top of the poly pops. It's meant to help people applying". Nevertheless he makes clear that applicants can expect much fiercer competition for places in some polytechnics and considerably higher A level grade demands in others, although – at least on paper – the two do not always coincide.

A level grade requirements have increased across all subjects since the first edition of the book in 1978, and some cases equal university demands: nine points (CCC) to do law at Bristol and City for example, and eight (BB) at Oxford. But the polytechnic with the highest applicant place ratio for law – and the highest in the book – is Middlesex, at 60:1, yet its grade requirements are six points (CC), and applicants shopping around will find North East London and Coventry (Lanchester) with ratios of 15:1 only asking for five points (CD).

The information was collected in a survey of polytechnic departments, with an 80 per cent response rate. It also shows the least popular

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MPs seek agricultural unity

by Jon Turney
Science Correspondent

A single central authority to direct agricultural research and development, which would channel more money into universities than the current funding agencies, is the main recommendation of a House of Commons Agriculture Committee report published today.

The report, completed just before the election, also backs the Agricultural Research Council in its dispute with the Advisory Board for the Research Councils over budget cuts and attacks the Ministry of Agriculture's lack of enthusiasm for strategic planning of research.

The committee says that the existing administration of research and development in agriculture, which involves the ARC, Ministry of Agriculture Fisheries and Food and the Scottish and Northern Irish agriculture departments, is "almost baroque in its complexity". It declares that the ministry does not understand the arguments for research strategy advanced by its own main advisory body on agricultural work, the Joint Consultative Organization.

The committee concluded that the best answer to this problem was a new, unified authority, although the ministry, the ARC and the Department of Education and Science were all opposed to the idea. The report stresses that the new authority should be independent of any one ministry, and should be funded jointly by the interested departments.

It also emphasizes repeatedly that universities should play a much more active role in agricultural research, both pure and applied. It notes that the ARC spends only £4.1m from its £95m annual budget in universities, and suggests that the Ministry of Agriculture is biased.

Aside from this, the ARC does well, in the committee's view.

Organization and Financing of Agricultural Research and Development. First Report from the Agriculture Committee, 1982-83, HMSO House of Commons paper 38 – I.

Wages experiment angers campus unions

by David Jobbins

University unions are to tackle head-on what they regard as a severe threat to nationally negotiated salaries and conditions of service posed by Government plans for new sources of funding for a limited number of universities.

An early meeting of the national universities joint union committee comprising all the academic and non-teaching unions is to consider the implications of Sir Keith Joseph's pre-election proposal for an experiment in university funding for wages and conditions.

They have waited until after the election before bringing the issue to the fore. But Ms Rita Donaghy, chair of the committee and chairperson of Nalgo's national universities committee warned delegates to the union's conference in the Isle of Man that such steps could affect staff not only at the universities directly involved in the experiment but elsewhere.

"We say this is going back to the bad old days in the universities when people were even lower paid than they are today. It would be more difficult to negotiate for 44 institutions than to have a national understanding, especially when the money is still being allocated at national level."

Ms Donaghy said the issue would be top of the agenda at the joint committee's next meeting. "The vice chancellors can get away with these cosy little chats with Sir Keith because the university system is so deeply malemocratic," she added.

Both clerical and manual workers are considering "final offers" from the university employers worth over 5 per cent to some employees.

The offer to white collar staff is heavily weighted towards staff on grades two and three – with up to 5.5 per cent for people earning about £5,000. But there is nothing on offer on conditions of service or restructuring and union leaders are recommending "reluctant" acceptance despite a warning from the employers that every ½ per cent over the cash limit of 3.5 per cent will cost 100 jobs. The overall increase is about 5 per cent.

Manual workers are considering a flat rate £3.30 a week without a recommendation from their national committee. The offer is worth about 5 per cent for the lowest two grades. Shift allowances are also to increase, after lengthy negotiations led to an improvement on the employers' first offer of £3.

A provisional agreement was also reached on regrading certain craft workers in an unassisted deal from April 1 this year reached belatedly following the 1982 settlement. Grading changes are most likely in catering, gardening areas and with painters undertaking driving on the campus as part of their other duties.

Offer to clerical staff from July 1

	July 1982 £	July 1983 £	Percentage increase
Grade 1	2,957–4,207	3,094–4401	4.6
Grade 2	4,084–5,015	4,280–5,289	4.8–5.5
Grade 3	4,846–5,883	5,111–6,160	5.5–5.1
Grade 4	5,863–6,847	6,160–7,162	5.1–4.6
Grade 5	7,046–8,330	7,371–8714	4.6

Offer to manual workers from April 1

	£ per week	£ per week	percentage increase
Grade A	64.5	67.80	5.1
Grade B	65.59	68.89	5.0
Grade C	67.4	70.7	4.9
Grade D	70.89	74.19	4.6
Grade E	73.59	76.89	4.5
Grade F	77.19	80.49	4.3
Grade G	80.21	83.61	4.1

Provide more for adults, says BTEC

by Felicity Jones

The Business and Technician Education Council is encouraging colleges to steer clear of traditional nine-month courses in favour of shorter courses for adults.

In a policy statement on continuing education, the council says that it wishes to develop and validate a range of vocational courses and units for adults which meet the needs of industry and business build on individuals' existing skills and develop students' job potential.

It emphasises the flexibility and length of courses it would like to see the colleges proposing. It encourages the development of single self-contained units.

These units would consist of at least 60 hours of instruction and 30 hour half-units be the minimum length normally accepted for validation. These units could be linked to others but each would be expected to stand alone.

The council thinks that in many cases individual units will provide the most appropriate way for adults to update specialist knowledge or meet the requirements of professional bodies. Combinations of units would provide "tailor-made" packages for students.

Adult learners may be deterred from studying because of difficulty in getting the time off work, fixed course attendance that does not fit in with employment or personal circumstances and the limited availability of particular courses in a particular area.

In order to counteract these deterrents in study, the BTEC wants courses to use any pattern of attendance or of open or distance learning. It does not rule out that combinations of various types may be the most effective way of meeting people's needs.

In trying to expand the provision of flexible courses, the BTEC also states that the entry criteria to such courses would need to be flexible to meet the needs of those people who want post-experience training but may not have formal qualifications.

New rule eases way to college for trainees

by Patricia Santinelli

Government youth scheme participants will be able to go straight on to college for up to 21 hours a week if new draft regulations approved by the Social Security Advisory Committee are ratified by Parliament next month.

Approval for the new regulation, part of a package of measures was given by the committee this week. It is now being sent to the Secretary of State for Social Security and should be debated by Parliament in around three weeks time.

The new rule would exempt young people who have completed Youth Opportunities Programme and Youth Training Scheme courses from the three month qualifying period necessary before they are entitled to study for 21 hours a week at college. This is the maximum period allowed without loss of benefits.

Youngsters on those courses had been caught in a net which affects school-leavers and adults wishing to study for a limited period without losing benefits. It was seen as highly contentious that schemes which are intended to enable progression to employment or further study should represent a major stumbling block.

The committee also approved a regulation which will prevent students on vacation claiming enhanced benefits because they have kept their lodgings in the area where they study, but are in fact living with their parents. A single student in that position will only be able to claim £20.55 as opposed to the enhanced amount of £25.70. Students can sometimes make this amount from other sources, such as their local authority.

● The Manpower Services Commission is to appoint a team of regional inspectors to monitor the quality of Youth Training Schemes. Nine inspectors based on each MSC region are to be selected.

The inspectors, to be known as quality advisers, will be drawn mainly from industry, with priority being given to those with an education background, although this does not preclude the secondment of staff direct from the education service.

The decision not to select MSC staff is because employers rejected the idea of having "more civil servants" engaged on this task.

A shot from the film *Madame Potatoe* by Emma Clader, which has been on display in London as part of the annual Royal College of Art degree show for the past week.

Leicester group forced to turn down £50,000 grant

Researchers at Leicester Polytechnic have turned down a £50,000 grant from the Council for National Academic Awards to extend a major study of engineering education because no other funding body will support it.

The Engineering Council, Science and Engineering Research Council and Department of Education and Science all turned down requests for money for phase two of the project. The first project report earlier this year was commended by Sir Monty Finniston, chairman of the Committee of Inquiry into the Engineering Profession.

The first part of the goals of engineering education project, founded by the CNAA and the DES, found that undergraduate engineers were ill-equipped to work alongside other professions in industry. They were bad at communicating, lacked confidence in policy debates and had little understanding of business practice.

The CNAA agreed to fund an extension of the project "to elucidate ways and means of promoting change in engineering education", according to Rita Austin of the council's development services division.

The DES declined to back this additional research early on, declaring that it was neither relevant nor timely. The Leicester researchers, led by Geoff Beuret, then tried to raise £50,000 to match the CNAA's offer by asking for £12,500 instalments from potential backers in the public and private sectors. But negative verdicts from the Engineering Council, who said they wished to concentrate on their own research, and the SERC, dissuaded industrial firms from contributing as well.

The Leicester team is now being disbanded, and Mr Beuret has written to the CNAA saying that the original £50,000 grant will not be needed. The council had offered to hold the money until the end of the summer, but Beuret believes that the chance of getting universities as well as polytechnics to cooperate with the study has now been lost.

This week he was resigned to returning to his teaching duties. "If the nation is determined not to try and solve its problems, neither our project or anyone else's can make any headway," he said.

Mr Brian Overy, secretary to the CNAA and chairman of the Leicester project's steering group during the first phase, said he was disappointed the work would not be extended. "It was a very promising and valuable project," he said. However, the CNAA would still develop its research programme to other areas where evaluation of effectiveness of existing curricula was needed.

Computer installed at university

University researchers throughout the country now have access to a Cray 1S "supercomputer" for the first time. The machine, one of a handful in Britain, is housed in an extension to the University of London's computer centre, which was formally opened on Tuesday by Princess Anne, chancellor of the university. The Cray is the centrepiece of the unit's plans to develop a national service for university computer users.

Dr Richard Field, director of the centre, said that time on the new machine was already nearly all allocated throughout the next year. The Cray, which was previously leased from its American manufacturers by the Science and Engineering Research Council for its Daresbury Laboratory, had been bought for the London centre because demand for higher computing power was increasing all the time.

The new machine would be used by meteorologies, engineers, quantum chemists and crystallographers for complex calculations they could not do any other way, he said.

The extension to the centre also houses an Amdahl 470 computer which is mainly used by social science and arts researchers who do not need the processing power of the Cray. Both machines will be available throughout the UK through a new data network. Dr Field said the outlines of the network would be complete in about a year, although both London and the other major university computer centre in Manchester already had extensive links with other universities.

● Shortly after inaugurating the computer centre, Princess Anne opened an extension to the chest unit at King's College Hospital Medical School. The new building, paid for by a grant from the Wellcome Foundation, houses research laboratories for work on lung diseases and breathing disorders.

Judge rules on charter

Final judgment on what the New University of Ulster must do to dissolve itself has come from the university Visitor Lord Justice Sir John Megaw, in a decision which contradicts Privy Council advice and puts still more pressure on the timetable for NUU's merger with Ulster Polytechnic.

The question of how NUU should surrender a charter designed to be enduring may prove crucial to the increasingly tight timetable, and to opportunities for any last minute attempt to save the university.

NUU lawyers had decided that a lengthy procedure of a council vote by simple majority to petition the Queen to wind up the charter, followed by two court votes with a two-thirds majority not less than one month or more than three months apart was necessary.

But as drafting progressed on a charter and statutes for the new institution, informal advice came from the Privy Council that a single simple majority court vote might be all that was necessary, and ultimate authority might rest with the council anyway.

Now Sir John Megaw as Visitor and ultimate arbiter has ruled that the longer procedure is necessary, implying that had the shorter one been used the university would have been vulnerable to an injunction from anyone opposing the merger.

Sir John's decision was announced to NUU council this week. The first meeting of the court at which a vote could be taken is on June: if that gained a 66 per cent majority, the next vote could not be until the very end of July or during August.

International role stressed

The national and international role of the five inner London polytechnics has been underlined in a response by the Association of Polytechnic Teachers to the review of higher education in the capital.

Welcoming the Inner London Education Authority's review, the London joint committee of the APT has modified its established policy for a "federal polytechnic" outside the local authority arena.

The committee felt that such steps were outside the scope of the review. The APT says that a federal or consortium of the five polytechnics under present governance would add a further guaranteeing enhanced course provision.

It suggests instead that links between colleges should be at course rather than directorate or academic board level, and that links with further education colleges would usefully form part of this system while enabling students reaching their level of attainment to leave the system with the appropriate qualification.

The association says there should be an increase in part-time and evening-only courses provided full-time work is not displaced.

"Any review of higher education in London should recognize that the ILEA boundary is an artificial one and that there are many links between colleges outside the area with those within, the relationship with the three universities in London (London, City, Brunel) should be considered, and that the polytechnics have a national and international role to fulfill," the association adds.

Stirling delays tenure meeting

A meeting of Stirling University's joint negotiating and consultative committee to discuss proposals abolishing tenure for all new posts has been adjourned until the end of the month.

It is understood there have also been informal talks between the university and the Advisory, Conciliation and Arbitration Service which was asked by Stirling's Association of University Teachers to conciliate in a dispute between the association and the university over three "new blood" posts being offered without tenure.

The dispute is also being discussed informally by the university and the AUT, which is advising applicants to seek advice from the association.

Mr Heath: outside candidate

Search for Dahrendorf's successor

Canvassing is now in full swing to fill one of the most prestigious posts in higher education – the directorship of the London School of Economics and Political Science.

All 12 members of the special selection committee, headed by Sir Huw Wheldon, chairman of the school's court of governors, have been asking to come up with desirable and possible candidates and suggestions from LSE members and associates are being studied.

The long list has so far thrown up two eminent sociologists, one well known European administrator, a chairman of the Social Science Research Council, and a former Prime Minister.

Dr Edmund Lisle, former head of the social science division of the Centre National de la Recherche Scientifique, the official French research centre in Paris, is considered to have good administrative and European credentials.

Professor Ronald Dore, who is 58 and currently assistant director of the Technical Change Centre, is a highly regarded sociologist who has strong connections with the LSE where he was professor of sociology.

Another eminent sociologist, Mr Gary Runciman, has also been mentioned, although it could prove hard to tempt him to a full time academic post from the family shipping business he runs. He has a fellowship at Nuffield College, Oxford, and is known to want to devote all spare time and energy to writing.

Mr Edward Heath, the former Prime Minister, has also been put on some lists. But a spokesman for Mr Heath said the former Conservative leader had every intention of continuing with his Parliamentary work.

Another possible candidate who has been approached is Mr Michael Posner, due to leave his post as SSRC chairman sometime in the autumn. However there may be doubts about his international academic standing.

Mr Posner: leaving SSRC

'Scarce' subjects gain bigger lobby

by Paul Flather

Pressure is increasing on the Department of Education and Science to set up a special committee to monitor and protect highly specialized "scarce" subjects in universities which do not attract many students but have important academic, diplomatic, security or trade value.

The first test for such a committee is already looming in the field of Iranian studies at Cambridge University where dons will vote in October on proposals to "suppress" eight and a half lectureships in the faculty of oriental studies.

Officials from the DES have been holding talks since the end of last year with other interested officials from the Foreign and Commonwealth Office and the Department of Trade and Industry, but no decisions have been made.

One setback for the proposed committee is the shifting of Mr William Waldegrave, former under-secretary for higher education, out of the DES. He was known to be keen on a committee looking at the plight of subjects like Asian, African, Slavonic, and Oriental studies.

The British Academy has become increasingly concerned about the future of such subjects and has made its views plain to the University Grants Committee, which would be centrally involved in any such committee. The academy is also watching developments at Cambridge.

A joint working party set up jointly in 1981 with representatives from Oxford University has recommended the abolition of eight lectureships at Cambridge and the replacement of the chair in Sanskrit with an ordinary lectureship. Persian and Turkish are to be concentrated in Oxford and the post in Iranian studies will disappear.

In a discussion in the Cambridge senate last month the report was heavily criticized for being "painful", an "unprecedented onslaught on oriental studies", harmful to the study of the ancient Iranian empire and related subjects such as Greek, Roman, and Indian studies, and even "satanic".

Cambridge is the only university to offer separate courses in Iranian studies at undergraduate level. The School of Oriental and Frican Studies in London offers it at postgraduate level and Persian is offered at Durham, Edinburgh, Oxford, London and Cambridge.

The university's general board argues that 36 posts in the faculty, given the number of students, is impossible to justify in the current economic climate. The critics argue that size and numbers do not matter when whole subjects are threatened.

Lecturers to withhold exam results

by David Jobbins

Lecturers at Brighton Polytechnic have voted to withhold students' examination results in an attempt to force the withdrawal of compulsory redundancy notices.

Their decisions, on the eve of the examination period, began on Tuesday despite an eleventh-hour warning from Mr Geoffrey Hall, the polytechnic director.

"Any restriction on the completion of the examination boards programme will lead to a delay in the publication of results affecting the progression of students, the release of local authority maintenance payments for the autumn term and in the present difficult times will inevitably affect the job prospects of our graduates and diplomates," he said.

He warned that any interruption of the examination procedures would be "neglect" of contractual and professional responsibilities.

Although six redundancy notices were issued two weeks ago, two have already been revoked and Mr Hall said discussions were continuing on possibilities of redeployment for three of the remainder. Good progress was also being made on secondment arrangements for a year's training for the sixth, he said, with the prospect of redeployment in 1984/85.

In a ballot three of the polytechnic's four branches have voted overwhelmingly for the action. Results of the fourth branch at Eastbourne are awaited.

Mr Bob Burn, chairman of the National Association of Teachers in Further and Higher Education's coordinating committee at the polytechnic said that 67 per cent of the total membership of the three branches had voted in favour. As well as refusing to forward marks, members of the Nate have been instructed not to take part in vital examination boards.

The local Association of University Teachers is backing the action by operating the same sanctions on university-validated courses at the polytechnic. The students' union is also supporting the lecturers' action.

A Natfhe official commented: "It is not our intention seriously to disadvantage students, where it is felt this will happen the coordinating committee has been given authorization to vary the instructions."

Officials stress the fight is not only with the polytechnic but with East Sussex County Council, which meets today. The authority has never ratified the national agreement on one year's notice and has given only six months' notice to the polytechnic staff involved, voiced.

One way out may be to invoke a local disputes procedure which has reference to the joint secretaries of the National Joint Council on Conditions of Service as its final stage.

Bid to simplify public funding

A new attempt to simplify the funding of colleges and polytechnics, ending the existing two-tier system of support, is being prepared by officials at the Department of Education and Science.

Preliminary findings were put before a working group of the National Advisory Body this week and are to be worked out in more detail for a series of meetings over the summer. Their aim is to reduce substantially, or if possible remove, the element of "further funding" which has been used to make allowance for high-cost institutions in the distribution of the advanced further education pool.

A DES paper pursued an approach already discussed by the NAB board, which would recognize "core costs" and effectively replace further funding by a new category of "allowable expenditure". It was accepted in the paper that: "There are clearly major issues of principle surrounding both angles of the proposed approach."

One change would involve allowing for "diseconomies of small scale" in calculating the basic funding level which would form the basis of the pool distribution for 1984–85. This would allow the proportion devoted to further funding to be reduced if a sufficiently sophisticated system could not be found to scrap it.

A more ambitious alternative would create "a single, flexible system of common funding" but the paper acknowledges that it might be difficult to justify such a move if variations of cost remained large either because of continued high spending by some institutions or because of justificable differences.

An analysis by the DES found that unit costs in higher education were directly related to the proportion of advanced work at an institution, but that there was a more complex relationship between overall size and costs.

Keep off YTS, says union

Public sector white collar workers are to oppose creeping "privatization" of the educational element of the Youth Training Scheme.

Leaders of the National and Local Government Officers Association are to consider ways of resisting and reversing the trend away from further education colleges towards the private sector which they believe is being directly encouraged by the Manpower Services Commission.

The union, with members in the polytechnics and colleges as well as local government, is disturbed at the growth of private companies who hope to profit from the YTS by undercutting the colleges.

Delegates at the union's annual conference on the Isle of Man this week voted overwhelmingly against the wishes of their leaders to boycott YTS schemes if trainees did not receive the rate for the job.

Mr Ralph Gayton, chairperson of the education committee warned that to boycott YTS schemes would remove the chance to set standards. "If we set them high enough we can drive the cowboys out. If we boycott the scheme the cowboys will come in," he said.

According to the union, companies believe they can make a profit of £300 a head on YTS trainees. One firm, the Link Organization from Birkenhead, has been set up from scratch to operate 18,000 YTS places on a £30m budget.

The conference also called for regeneration of the economy through increased public spending, particularly on capital projects. It approved an alternative economic strategy which includes a massive expansion of education and training to bring Britain into line with other industrialized countries, and longer full-time and continuing education to reduce the work content of each job.

Row builds up over future of architectural education

by Felicity Jones

A row is likely to erupt at an important consultative conference on the future of architectural education this autumn because participants feel it is being held too late.

Several prominent architects believe that by the time the conference is held by the Royal Institute of British Architects at the end of November, the Joint National Advisory Body and University Grants Committee architecture working group will already have made crucial decisions about resources and student numbers.

A conference held recently in Leicester on "informing the schools of architecture" ended in acrimony when it was thought that the RIBA had already conceded that the number of entrants to architectural schools should be restricted.

A summary of a "green paper" on strategy which Professor John Tarn of Liverpool University will present in full at the November conference aroused an angry response when he said that pruning was necessary and the RIBA ought to cooperate fully.

Other participants thought that since unemployment was not such a serious problem as in other professions, there was no automatic reasons for reducing student numbers. In some circles it is thought that the pressure to reduce intake comes from older members of the profession who are being pushed out by the younger architects.

At Leicester, Professor Thomas Markus of Strathclyde University said that members had originally thought that the November conference was being held to devise a strategy for the future. But it had become clear that a strategy would be already be partly devised by then.

Professor Markus, a former vice-chairman of the RIBA education committee, said a smokescreen had been erected to give the impression of consultation but by November the NAB decisions on polytechnic and colleges would be advanced.

"It is putting the cart before the horse to propose to develop a long-term strategy when some key short-term cuts will have already been made," he said.

Mr Peter Gibbs-Kennett, the director of education at the RIBA said people were getting paranoid about the NAB exercise. He said it was a "mistaken impression" to think that key decisions would have been made before the autumn strategy conference.

Favourite poly in Britain

continued from front page

polytechnics in these subjects to be Ulster and North London. Students desperate for a place at any price should try polymer science and technology at North London or ceramic technology at North Staffordshire, since in both these courses places outnumbered the applicants.

But the figures should be treated with caution: they clearly disadvantage polytechnics which have few vocational courses or those whose departments did not always send in the numbers of applicants and places; courses run by fewer than five polytechnics have been omitted, but unusual courses will still tend to push their institutions to the extremes of popularity or unpopularity because there are fewer with which to compare them.

The book also includes the male/female ratio on each course; the percentage of non-A level candidates accepted; selection criteria; the policies on interview and the exam success, drop-out rates and final destination of each department's students.

Survey of Polytechnic Courses in England, Wales and Northern Ireland by Eric Whittington, published by Careers Consultants Ltd.

Graduate teacher warning

If the employment market improves markedly not enough graduates will go into teacher training to meet demand in the 1990s, the Government was warned this week.

And if there is a smaller improvement, graduates in maths, science and vocational subjects will move into other areas, leaving arts, social studies and humanities graduates to enter teaching if they are allowed to, the Association of Graduate Careers Advisory Services says.

The warning comes in a note to the Advisory Committee for the Supply and Education of Teachers, which is considering Department of Education and Science projections on anticipated demand. This shows that by 1990 teacher training will need a 16 per cent share of a diminishing number of qualified leavers anticipated to be below 120,000. In 1995 the proportion will rise to 20 per cent out of a projected 100,000 leavers.

Among the fundamental reasons given by the association for such a forecast are the likely increasing demand for graduates in most jobs leading to fierce competition for the decreasing number available. It also points out that in the past graduates have opted for secondary teaching, yet most of the future vacancies will be in primary schools.

"But above all if the 'relevant degree' criteria is applied vigorously a significant proportion of the graduating force, whatever their interests and abilities in teaching, will not be accepted on to Postgraduate Certificate of Education courses," the association says.

It recommends that if more are to be encouraged into the profession, then the "subjects of relevance" requirement should either be removed or there should be one-year courses for graduates of certain subject combinations and two year courses for others.

● The Government's pilot national scholarship scheme designed to attract more high quality maths and physics graduates into teaching has so far failed, according to a Leicester University report. It recommends lowering entry requirements to include graduates with lower second degrees.

News in brief

Marsland leads economic forum

An attempt by the vice chancellor of Birmingham University, Professor Edward Marsland to set up a broadly based forum to tackle the economic problems of the West Midlands is being backed by industry, trade unions and local authorities.

After a meeting this week of representatives from the regional Confederation of British Industry, Trades Union Congress, local authorities and university representatives a steering committee has been set up with Professor Marsland in the chair.

Turkish assurance

The British Council has assured the Association of University Teachers that it is not helping the Turkish government to recruit British academics. A letter to Ms Diana Warwick, the union's general secretary, recalls a Commons statement by a Foreign Office minister in March rejecting suggestions that the British Council had been assisting the Turkish government.

Degrees of equality

Controversial Scottish educationist, Mr R. F. Mackenzie has refused an honorary degree from the Open University because of its non egalitarian honorary degree structure.

Mr Mackenzie had initially accepted the honorary MA, but then discovered the OU differentiated between those who received doctorates and those who received MA degrees.

In a letter to the OU, Mr Mackenzie explained that since he had spent most of his life fighting for parity of esteem among his pupils, he could not accept distinctions akin to officers and "other ranks" in the army, and academic and non academic pupils in schools.

Biotech company

Edinburgh and Heriot-Watt universities this week launch their new biotechnology company, *Biocat*, which will offer research and consultancy services. It is backed by the Scottish Development Agency, Lothian Regional Council and the Bank of Scotland.

Business as usual

The City University Business School will remain a constituent part of the university, but discussions will now take place about possible new forms of relationship between the two. This was the result of a discussioo at the City senate last week. The business school had produced a discussion document listing eight different options for its future, the favourite being the school receiving its grant direct from the University Grants Committee.

Visitors welcome

Glasgow University is to establish on annual visiting fellowship in Scottish literature from October next year. Financially supported by the *Glasgow Herald* it is intended to attract applications from scholars working outside Scotland.

Polys threaten NAB boycott

by Kuren Gold

Two polytechnics may pull out of all committees of the Council for National Academic Awards and the National Advisory Body if the proposed NAB reduction in the unit of resource goes ahead.

Both moves hinge on the polytechnics' academic boards which say academic standards will fall as a result of the NAB proposal to cut the funding per student in higher education by about £500.

Middlesex Polytechnic's resources committee has passed a resolution without opposition which is to go to the academic board at the end of this month. It asks that the "academic board be advised to recommend members of the polytechnic to withdraw from any committees of the NAB and the CNAA of which they are members, so long as such action is paralleled by similar steps taken by a substantial number of other institutions".

The withdrawal would be "until assurances are received that the preservation of academic standards in public sector higher education is given a high priority by the CNAA and NAB when future resourcing is under consideration".

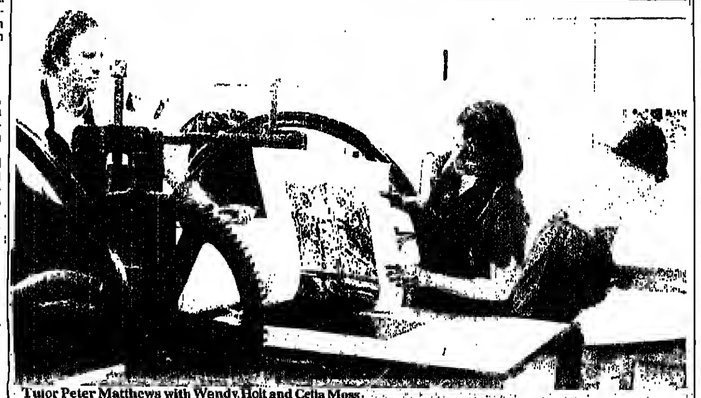
In a second motion, the resources committee also called on Middlesex's governors and local education authority representatives to urge the Secretary of State for Education and the NAB committee to reject the proposed unit cost reduction and seek funding that would guarantee academic standards.

Mr Richard Lewis, the committee chairman and polytechnic assistant director, said that the polytechnic had got to the lowest possible staff: student ratio with the existing level of support. Further cuts would turn polytechnics into childminders.

The resolution was not an attack on the CNAA, nor did it come from the polytechnic hierarchy, he said. "It was seen as a feeling that at some stage action needs to be taken by individuals to express their disquiet at the way developments could go."

North-East London Polytechnic's academic board has passed a resolution with similar intentions, according to Mr Gerry Fowler the director. He said it supported "any action that was necessary in order to demonstrate the absurdity and unacceptability of the proposed sharp reduction of the unit of resource."

The meeting had given Mr Fowler power to act if the NAB decision became known quickly – for example if the NAB ordered a sharp increase in student numbers together with a cut in funding – so that the NELP would move along the same lines as Middlesex with the ultimate sanction being withdrawal from the NAB and the CNAA, he said.



Tutor Peter Matthews with Wendy Holt and Celia Moss.

College ballots idea floated

Ballots in the colleges are a possible outcome of discussions within the lecturers' union on new ways of electing its national leaders.

The 76,000 members of the National Association of Teachers in Further and Higher Education are evaluating a discussion document circulated by the executive on alternatives to the present system under which the 25-strong executive is elected by the 120-member national council which in turn is elected by the 14 regional councils.

Direct elections would reduce the influence of union activists who attend regional and national councils, and could be expected to steer the union to the right.

Four possible methods of election suggested for consideration are:

- postal ballot;
- ballot papers issued by branch officers – cheaper but held to be open to abuse and accusations of malpractice;
- Voting to take place at designated branch meetings – underlining the role of the union's 800 branches but presenting practical difficulties;
- Ballot boxes in colleges.

Two modifications short of full direct election are also examined, both designed to retain the regional representation on the executive at present safeguarded by the stipulation that each of the 14 regions must have at least one representative.

One is to retain the national council as an electoral college for only 11 members of the executive with 14 appointed by the regional councils. The trouble with this is that it would create two distinct classes of executive member and possibly "regionalize" the attitude of executive members.

The final option is for election of the 14 regional representatives by postal ballot within the respective regions – again creating two classes.

Unit urges support for scheme

by Patricia Santinelli

Further education colleges will fail many young people if they do not participate in the Youth Training Scheme, a Further Education Unit report warned this week.

"Although it is regrettable that colleges will have to fight for a place in the YTS, not to get involved will only result in the neglect of a great many youngsters," says the report *Supporting YTS*.

The report aims to give colleges guidance on how to implement the YTS. It was prepared by a group of experts chaired by Mr Jim Debon of the Confederation of British Industry. Its membership was drawn from education, local authorities, the Business Education Council, teaching unions, the Manpower Services Commission and industry.

It is intended to be used as a manual and contains separate sections relating to each of the eight design elements necessary to the scheme. Each section states or refers to the MSC criteria and then gives so describes how these relate to further education and other education perspectives.

The FEU says it is anxious to encourage participation from colleges because it sees the possibility of new training and educational opportunities for many young people. This is in spite of recognizing the uncertainties which exist both in the curriculum designed for the scheme and the intentions of managing agents.

In particular, the report is concerned about progression from the training scheme into a job or further education and training. This is an unresolved issue. It stresses that from the outset the best approach to the YTS is one which envisages eventual integration of all three of the National Training Initiative objectives – the YTS, skills training and adult training and retraining.

It adds that if the response of further education is to maintain its traditional ways of working and not adjust to changes, then the result is likely to be disastrous for colleges.

The report does not deny that the YTS presents problems or organizational change, the need for different teaching methods and possibly a reallocation of resources which have to be resolved between local authorities and colleges.

Supporting YTS – Guidance for colleges and others involved in the MSC Youth Training Scheme, from the Further Education Unit, Elizabeth House, York Road, London SE1.

Workers win their licences to print

by Paul Flather

Working in bookshops, running a print workshop, interior design, teaching and art therapy, and doing odd jobs, even gardening, are among the ways graduate students have paid their way through the first approved pact-time course in printmaking.

Five students have just completed the two-year postgraduate diploma course at Wimbledon School of Art in London, the first to be approved by the Council for National Academic Awards. Their etchings, lithographs, drawings, and collages are on show at the Bloomsbury Galleries, Bedford Way from today until June 24.

The course was designed by principal lecturer in printmaking Mr Brian Peery, to meet growing demand from students clearly unable to win grants. It costs £228 a year for two days a week in school, plus up to £50 for special materials.

Acceptance has to include scrutiny of a student's plans to raise funds and survive the course, as well as academic and artistic potential.

Celia Moss, who is 27, works four days a week in a bookshop to allow her two days a week to the school printing her etchings.

Rachel Woodnut, 25, teaches adult education classes and undertakes private decorating work whenever she needs money. She moved up from Wales to take the course, while Wendy Holt begins her days in school at 6.00am commuting up from Southampton.

Colin Dyce, 29, has worked in hospitals, on building sites, and in local government, before finding his niche in printmaking, running a studio for a well known print artist. Ruth Martin, 28, is a painter who has enjoyed extending herself on the course.

Mr Perry who also sits on the CNAA fine art panel is in no doubt about the success of the course. He keeps interviews down to 60 but the standard and numbers of applications is increasing.

Researchers 'need new structure'

Scientific researchers need a new career structure which avoids the twin pitfalls of short-term contracts or tenured posts with heavy teaching duties. This argument, outlined by Dr Anne Simmonds of Guy's Hospital was the main theme of a symposium organized by the Association of Researchers in Medicine and Science at the hospital.

Dr John Dickinson, the association's chairman, told the meeting that the present pattern of research support led to poor continuity in careers and hence poor training of medical and scientific researchers. He argued that ARMS's aim of a career structure which catered for more investigators devoting themselves to research full-time after the age of 35 need not cost more than the present system. However, he admitted that ARMS's proposed reforms could reduce initial recruitment of researchers by as much as 20 per cent.

Dr James Wyngaarden, director of the US National Institutes of Health, the largest American medical research organization, said he was especially concerned about the loss of young researchers who were deterred by the lack of a proper career structure.

However, the only speaker from a British research council defended the existing system. Professor John Kingman, chairman of the Science and Engineering Research Council, argued that the council's job was to maintain a steady supply of young researchers and the limit of two contract grants was the best way of ensuring this.

Catholics launch peace trust

A Roman Catholic organization has set up a charitable trust to promote research, produce educational materials and provide support for students in peace studies.

The aim of the Christian Peace Education Trust, established by the British section of the Catholic Pax Christi movement, is to help people understand the roots of national and global conflict in light of Church teaching on war, justice and peace.

Mr Brian Wicker, principal of Fircroft College and a trustee of the new organization, said it was not sectarian in spite of its Catholic origins. "It is not a pacifist trust either, but is concerned to develop and promote education for peace in the light of Christian teaching," he said.

The trust has been set up in response to widespread demands from within the Church for more effective education at all levels. It will aim to work through adult education to the Catholic community as well as schools and seminaries.

Strand favourite site for merger

by Ngaio Crequer

The best site for a merged King's, Queen Elizabeth and Chelsea college in London would be at the King's site in the Strand plus part of Somerset House and Cornwall House.

This is the main conclusion of a document drawn up by representatives of all three colleges which has gone to the college councils for preliminary consideration. Cornwall House is an office building at the southern end of Waterloo Bridge.

According to the document a single site operation eventually is the main objective, although there are a number of equally credible prospects for a two site operation. Here "the King's College/Chelsea College options offer the best choice in quality of environment, development potential, programme and capital cost".

The document says: "The King's/QEC options fail to provide two campus alternatives, nor does QEC offer the potential of a single campus. The King's/Denmark Hill option would be difficult and most expensive to develop and offer in Denmark Hill a setting of low environmental quality."

The colleges asked architects and quantity surveyors to carry out site feasibility studies and 16 different options have been costed, on the basis of which buildings could be retained and developed and which sites sold. The costs range from £14m to nearly £60m.

In the short term, it will be necessary to work on three main sites. The document also urges cost/benefit appraisals of converting existing academic buildings at Campden Hill (QEC) and King's Road (Chelsea) to residential use, this being preferable to disposal.

Between them the three colleges have a deficit of more than £2m and each will be responsible for securing its own financial viability preferably before merger, now anticipated to be October 1984. There will be nearly 6,000 students and some 525 academic staff at the combined college.

Each college has its own royal charter and if they become a single institution they will need a new one. "It is worth noting that the Privy Council is currently looking very carefully at proposals for new charters, especially in the way they may embody the concept of academic centre. The colleges may find therefore that it may be better to consider amending one of the existing charters to include all three institutions," says the document.

New emphasis wanted to teach young self-help

by Patricia Santinelli

Dramatic changes are needed in education if young people are to become self-sufficient in a world where opportunities to work for someone else are now rare.

This is one of the main conclusions of a new book, *Self Sufficiency – 16–25*, which is being published by Kogan Page next month. Its authors Richard Bourne and Jessica Gould argue that there is too much noise about the evils of unemployment and too little positive action.

They examined various schemes and projects in the UK designed to provide financial help and practical advice to young people who wish to set up their own businesses.

"Education is still very much geared towards preparing young people to work for someone else, a commendable proposition in times when employment can be found but an insufficient answer to the problems of 1983 and the immediate future," they say.

The authors argue that teachers, lecturers, trainers and anyone concerned with educating or instructing young people should radically alter their attitudes.

"This will involve putting as much stress on the harsh realities of life after school as on academic skills and qualifications if young people are to survive the transition to adulthood and the world of responsibility. Self-start initiatives must be impressed upon youngsters from their earliest schooldays onwards."

The book contains a social study of the many obstacles which confront young would-be entrepreneurs before they can even think of trying their hand in a commercial venture.

It attacks the bureaucratic rules and commercial attitudes that stand in their way, for example, the bank manager who refuses funds simply because he considers young people to be a bad investment.

More thought for food

Medical education needs greater emphasis on human nutrition, according to a group of academic biologists and doctors reporting for the British Nutrition Foundation.

Their report, produced by a BNF "task force" chaired by Mr Joseph Rank of Rank Hovis Macdougall, says that one academic unit in each medical school should take a special interest in nutrition. At the moment, the working group found that only about 40 per cent of medical schools had anyone to coordinate pre-clinical teaching of nutrition. Fewer still made an effort to coordinate teaching of the subject to clinical students.

Introducing the report, Professor Albert Neuberger of Charing Cross Hospital Medical School suggests that nutrition should play a much larger part in the teaching of both medical undergraduates and postgraduates, though it need not necessarily be taught as a separate subject.

The report also calls for closer research and teaching links between medical schools and non-clinical research centres, and it suggests that the medical royal colleges set up a working party to review nutrition education for medical students and junior doctors. Dr Juliet Gray, the task force's secretary, said that the BNF hoped such a group would get off the ground, as the royal colleges would be better placed to suggest ways of changing the curriculum to meet the BNF's recommendations.

Nutrition in Medical Education, British Nutrition Foundation, 15 Belgrave Square, London SW1.

London enters the third age

A self-help university for retired people will come into full operation in London this autumn through the cooperation between universities, polytechnics and colleges.

Although similar programmes of study for retired people based on the movement which started in France have been started in this country, this is the first time that such a wide range of institutions have become partners in a University of the Third Age.

The U3A London initiative will involve the Courtauld Institute, King's College, the Polytechnic of North London, Thames and Central London polytechnics, Central London Institute of Adult Education, Kingsway-Princeton College, Southwark and Lambeth adult education institutes. It arose directly out of a conference last year sparked off by Professor Brian Groombridge, director of the University of London's extramural department, who chaired the steering planning committee.

The extramural department has loaned offices and Dr Sidney Jones of the Polytechnic of North London has been seconded as academic administrator to set up the self-help university. But the U3A will be relying on the voluntary help of individual members to do the administrative tasks and act as the coordinators of self-programming groups.

Many of the courses will be held during the daytime and course fees can be held down by the large voluntary input. Further information about the U3A is available from Dr Sidney Jones, 26 Russell Square, London WC1B 5DQ.

SERC urged to build accelerator

by Jon Turney
Science Correspondent

A report on nuclear physics for the Science and Engineering Research Council argues strongly for a new multi-million pound accelerator to be built at the council's Daresbury laboratory.

The report, written for the SERC's nuclear structure committee by a group under Professor George Morrison of Birmingham University, reviews needs for new facilities in the field.

It concludes that the most fruitful option for British nuclear physicists would be a medium high-energy electron accelerator, costing around £6m. The report says a design study should begin now with a view to running the machine within five years.

The committee was set up in 1981 to review the state of the field, and its report emphasizes that nuclear physics is both scientifically promising and industrially useful.

Nuclear physicists focus on the details of atomic structure rather than the more glamorous elementary particle physics pursued on the really large international accelerators. They have access to the new nuclear structure facility at Daresbury, which finally became available for experiments this year.

But in spite of the existing investment at Daresbury, the committee believe that "the number of UK nuclear physicists has been allowed to decline to dangerously low levels for a country with advanced industrial interests".

The report estimates that the number of active nuclear physicists in the UK fell from 355 in 1970 to 225 last year. It implies that the benefits of nuclear research, which in the past have contributed to cosmology, energy research, development of radioactive tracers and solid-state physics, will be in jeopardy if British scientists are denied a further new machine of their own.

The committee also stresses the importance of formal collaboration in the field and urges that more money be made available for cementing ties with foreign institutions running different types of accelerators for probing nuclear structure.

In particular, it discusses the possibility of a £9m addition to the Daresbury machine to produce a powerful heavy-ion beam. But the committee concluded that British researchers' need for access to such a machine could be met more easily by links with similar facilities in Europe.

Professor Bill Phillips, chairman of the SERC nuclear structure committee, said this week that the proposed machine for Britain was relatively cheap compared with other projects in big science.

A long range plan for nuclear physics, report of the working party on future facilities to the nuclear structure facility, SERC 1983.

Monetarists reap birthday rewards

Tough monetarist thinking by academics has been handsomely rewarded with three knighthoods and a CBE, all included in the Birthday Honours list announced last week.

There are also knighthoods for Dr Alwyn Williams, principal of Glasgow University, for Professor Stephen Spender, the poet and critic, and for Mr Patrick Neill QC, warden of All Souls, and for five years chairman of the Press Council. He becomes vice chancellor of Oxford University in 1985.

Michael Atiyah, the Royal Society research professor at the Mathematical Institute of Oxford University, one of the country's outstanding mathematicians, is also knighted as is Professor Robert Boyd, director of the Mullard Space Science Laboratory, and professor of physics at London University.

Mrs Thatcher's three close aides who are knighted are Mr Terence Burns chief economic adviser to the Treasury since he was seconded from the London Business School in 1979; Professor Alan Walters, her principal economic adviser since 1981, on leave from his chair at Johns Hopkins University, Maryland; and Mr Alfred Sherman, aged 63, a co-founder of the Conservative Centre for Policy Studies.

Scientists are also well represented in the list, which includes Eric Ash, professor of electronic and electrical engineering of University College London, and Barbara Clayton, professor of chemical metabolism at Southampton University, both created CBEs.

There have previously been complaints that not enough awards have gone to university vice chancellors but even so the award to Dr Williams is surprising because he has been a stern critic of the cuts.

Dr Peter Clarke, principal of Robert Gordon's Institute of Technology in Aberdeen, a strong supporter of vocational education, is created an OBE, while Mr Stanley Percival, principal of Charlotte Mason College of Education, is appointed an OBE.

There are also awards for three polytechnic lecturers from Birmingham, Leicester and Oxford, and one college lecturer. Mr Albert Blagrove, who became a porter at Balliol College, Oxford, just after the war, and was 81 last week, was given the BEM.

Mr Michael Posner, who leaves as chairman of the Social Science Research Council in the autumn after steering it through very rough waters, is created a CBE as have all previous chairmen, while Sir Frank Cooper, former head of the Ministry of Defence, now on the SSRC, is appointed a Privy Councillor.

Alwyn Williams: cuts critic

CB: Professor G. A. H. Elton, chief scientist, Ministry of Agriculture.

CBE: D. N. Arnold, Heather professor of music, Oxford University; E. A. Ash, Pender professor of electron and electrical engineering, University College, University of London; P. Clarke, principal, Robert Gordon's Institute of Technology, Aberdeen; Miss B. E. Clayton, Professor of chemical pathology and human metabolism, University of Southampton; Professor J. P. Cooper, director, Welsh Plant Breeding Station, Aberystwyth; D. E. Fogg, professor of marine biology, University College of North Wales, Bangor; N. E. Frost, chief scientific officer, Department of Industry; E. J Gibson, deputy chief scientific officer, Department of Environment; Professor H. Morris-Jones for public services in Wales; J. Leather, principal, Derby College of Further Education; M Macmillan, lately controller, English language and literature division, British Council; Professor W. N. Medlicott, senior editor, Documents on British Foreign Policy; J. H. M. Pinkerton, professor of midwifery and gynaecology, Queen's University, Belfast; M. V. Posner, chairman, Social Science Research Council; Mrs M. H. Rule, archaeological services to raising of *Mary Rose*; A. Seldon, economist; Professor J. C. Smith, member Criminal Law Review Committee; Professor O. L. Wade, dean, faculty of medicine and dentistry, University of Birmingham; A. Yates, lately director, National Foundation for Educational Research in England and Wales.

OBE: Professor R. J. Adam, for political public services; P. J. Black, professor of education and director, Centre for Science Education, Chelsea College, London; Professor D. H. Desty, scientific consultant, BP Research Centre, Sunbury; J. G. Dunkley, chairman management committee, school of Dental Therapists; Miss M. G. E. Giles, principal department of Education and Science; F. K. Grodecki, professor of law University of Leicester; F. W. Hawkins, inspector of schools, Department of Education and Science; F. G. H. Lupton, deputy director, Plant Breeding Institute, Cambridge; A. P. C. McKee, naval historian for services to raising of *Mary Rose*; R. A. Maguire, partner, Maguire and Murray, head of department of architecture, Oxford Polytechnic, R. D. Melkle, lately principal scientific officer, Herbarium, Botanic Gardens, KEW; I. A. E. Morley, chairman, Plunkett Foundation for Cooperative Studies; Y. Neaman, head, Advanced Solo Studies, Guildhall School of Music and Drama; R. E. Parker, member, N. Ireland Nature Reserves Committee, senior lecturer in botany, Queen's University, Belfast; S. W. Percival, principal, Charlotte Mason College of Education, Cumbria; Miss E. D. B. Thompson, member, scientific staff, medical Research Council, Medical Sociology Unit, Aberdeen; G. H. Wilson, chief inspector of schools, Director, Education Services, Kirklees Council; O. T Young, services to pesticide chemistry.

MBE: Miss E. A. Bent, lately director of education, Royal College of Nursing; F. C. Bingley, lately warden and director of studies, Flatford Mill Field Centre; Miss I. Clarke, lately senior administrative officer, Education Welfare Services, Inner London Education Authority; P. V. Jones, lecturer in classics, Newcastle University; Miss V. P. March, principal lecturer in multimedia studies, School of Education, Leicester Polytechnic; M. L. Mullinder, senior scientific officer, Ministry of Defence; D.E. Robinson, head, department of maths and computer studies, Belfast College of Technology; Miss N. M. Ruffel, registrar, Association of Certified Accountants; Mrs M. E. C. Stewart, for services to archaeology in Scotland; D H. Tilt, principal lecturer, faculty of engineering and science, Birmingham Polytechnic; H. E. Tompkins, department supervisor, department of biochemistry, University College, London; P. C. Turner, education officer, HM Prison, Exeter.

BEM: R. A. Black, cartographic draughtsman, Ordnance Survey; A. E. Blagrove, porter, Balliol College, Oxford; F. Holmes, grade hand, Science and Engineering Research Council; J. S. R. Worden, chief technician, North-East London Polytechnic.

Overseas news

Campus tax dispute suspended

from Janet Hook
WASHINGTON

The US government would be temporarily prevented from collecting taxes from colleges that provide low-cost housing for their faculty members, under legislation approved by Congress this month.

The prohibition has been proposed in response to a long-standing dispute between colleges and the Internal Revenue Service, the US tax-collecting agency, over whether reduced-rent housing provided to employees is a fringe benefit that should be taxed.

At issue is a common university practice of providing faculty members with college-owned lodging at below-market rents. Many colleges offer employees accommodation at lower rates, charging just enough to cover their operating expenses, because they want faculty members to live on or near the campus.

But the Internal Revenue Service has contended that the difference between the market value of college-owned housing and the lower rates charged to professors should be considered a form of income, on which tax should be paid.

For several years the IRS has been trying to collect taxes from four New England institutions – Amherst, Smith, and Wellesley colleges, and Wesleyan University – that have offered reduced-rent housing to faculty. Tax analysts say the IRS's claim that the colleges should have been withholding taxes from the pay cheques of employees who participated in their housing programme would cost each of the colleges hundreds of thousands of dollars.

The IRS efforts would be blocked, under an amendment that the House of Representatives has tacked on to an omnibus Appropriations Bill. However, because the Senate voted to drop the amendment from its version of the Bill, the housing tax ban is expected to be the subject of negotiations between representatives of the House and Senate.

The prohibition on collecting the taxes would technically expire on September 30.

The question of what fringe benefits should be taxed has been a matter of debate since 1978, when the US Supreme Court ruled that employers did not have to withhold taxes on employee benefits such as meal allowances if they had a "reasonable basis" for believing that the benefits did not constitute wages.

The same year, Congress passed a law prohibiting the IRS from issuing regulations that would levy new taxes on fringe benefits – a moratorium that was imposed to give legislators time to give further consideration to the issue.

Critics of the IRS's efforts to collect back taxes from the four New England colleges say the agency is violating the moratorium, because the agency had not in the past sought to collect such taxes.

Congress will have to resolve questions about the tax status of fringe benefits by the end of this year.

Universal youth allowance advocated

from Geoff Maslen
MELBOURNE

Up to 300,000 young Australians could transfer from the fulltime labour market to the education system if a universal youth allowance was available, according to a Melbourne University economist.

Dr David Ironmonger, acting director of the Institute of Applied Economic and Social Research at the university believes the introduction of such an allowance could lead to a substantial increase in employment of adults aged 20 to 64.

This would result from the direct replacement in jobs of about 150,000 teenagers at present in fulltime employment, the employment of some 15,000 additional secondary and tertiary teachers, and also by the indirect effects of the additional employment needed to supply goods and services resulting from the change.

Dr Ironmonger says a universal allowance would be a more sensible form of financial incentive for teenagers than present systems which offer scholarships, family allowances or tertiary allowances to a minority of students.

At present, education assistance schemes amount to some A$150m, family allowances to more than A$120m, and unemployment benefits to about A$200m in support to those aged 15 to 19.

Under Dr Ironmonger's scheme, an allowance of A$20 a week would be paid to 15-year-olds, A$30 to those aged 16, and so on up to A$60 a week to those aged 19.

This would lead to an outlay of youth allowance payments to excess of A$1200m a year, giving an apparent net cost of around A$800m but Dr Ironmonger proposes a gradual introduction of the allowance scheme over a period of five years.

"A strategy to provide a universal youth allowance combined with a strategy on the education front to provide appropriate places in technical and secondary schools – with some additional courses in colleges – would enable a shift of 300,000 young people, by their own choice, from participating fulltime in today's labour market to participating in a more adequate educational preparation for the labour market demands of tomorrow," Dr Ironmonger says.

Although there has been a dramatic shift in the last 30 years in the educational participation rates of Australian teenagers (they have more than trebled since the war). The fall-off in full-time educational participation in Australia between the ages of 15 and 19 is markedly at variance with Japanese and American figures. They show full time education participation rates at age 17 in excess of 80 per cent, almost double the Australian rate.

According to Dr Ironmonger, this continuation of educational investment for teenage boys and girls in Australia's trading partners must give them a decided advantage in the depth of their "human capital". "For example, the rate of adoption of new technology probably depends as much on the availability of skilled and responsive individuals who can cope with innovation as it does on the availability of the technology itself," he says. "In a rapidly changing technical environment, those few additional years of educational participation may well be a critical factor in the rapid adoption of improved methods.

Dr Ironmonger's comments come at a time when the Labour government is attempting to develop a youth policy and a programme intended to attract 30,000 new students to secondary schools and technical and further education over the next three years, and 25,000 new enrolments in universities and colleges by 1990.

Left breaks dominance at Tel Aviv

from Benny Morris
JERUSALEM

Left-wing student union factions have won a resounding victory at Tel Aviv University, assuring the left's takeover of the National Student Union later this year.

The victory in TAU came three weeks after a similar defeat of the right at Jerusalem's Hebrew University.

Alternative, the faction affiliated to the Labour Party and groups to the left, won some 75 per cent of the votes in the record 7,900 turn-out (of the total TAU student population of some 16,000). In the 1979 union elections, for example, only 256 students voted.

Alternative's victory followed eight years of dominance of the union by the right-wing Student Bloc and Likud-affiliated factions which are similar to the defeated right-wing Kastel grouping at the HU, which had dominated Jerusalem's student union since 1976.

The university withdrew its recognition from the union last year following repeated charges against the union of financial and electoral malpractice.

A TAU spokesman, following the elections, said the administration will now ask the university's executive committee to recognize the new elected representatives as the official student union.

The university has formulated new rules, which include the adoption of a new union charter, which the union will have to follow.

The swing in the elections was attributed by observers to the right-dominated union's repeated clashes with the university administration.

With TAU and the HU together mustering over 30,000 students, or just over half the country's student population, Labour and the other left factions are certain to win a majority at the National Union of Students executive committee elections later this year – ending the six-year right-wing dominance of the NUS.

Science needs stressed

by Peter Mauger

Speaking at the second national conference on educational science planning in Beijing (Peking) last week, minister of education He Dongchang urged researchers to study all experiences, both domestic and foreign, to find the correct socialist educational system best suited to the country. Marxist views and methods should be used, he said, to analyse major questions such as education's relations with economics, politics, culture and science.

To augment the inadequate number of 1,200 professional educational science researchers, more college students, postgraduates and young teachers should be recruited, funds for educational research should be increased, international academic exchanges promoted, and experimental bases for educational research established.

The necessity for more emphasis on science was also stressed by Hu Quiaomu, chairman of the state council's academic degree committee, at a meeting to confer China's first PhD and mastors' degrees.

"The whole nation," he said, "is at present concentrating on socialist modernization, striving to develop the social productive forces and build up a socialist spiritual and material civilization. At a time when science and technology is developing with leaps and bounds throughout the world, the role of science and technology in producing greater economic results is of growing importance.

"China has to rely on science and the training of talented people in science to raise productivity and develop the national economy. The cultural and ideological life of the people also demands large numbers of specialists. In this sense, the question of whether China can independently train the talent it needs for socialist modernization, particularly high level personnel with a PhD or masters' degree has become the crux for the success of socialist construction, as well as a key question concerning the independent and comprehensive development of the country's education.

China would train its senior professionals independently, he said, but a certain number of research students would continue to be sent abroad to study those branches of science which are relatively weak in China.

There are some 600 in UK universities at the present time. A gigantic effort was needed to create a teaching and advisory force drawing in professors and scientists with high academic qualifications; foreign scholars and specialists would be invited to help in newly emerging and relatively weak areas.

According to Dr Ironmonger, this continuation of educational investment for teenage boys and girls in Australia's trading partners must give them a decided advantage in the depth of their "human capital". "For example, the rate of adoption of new technology probably depends as much on the availability of skilled and responsive individuals who can cope with innovation as it does on the availability of the technology itself," he says. "In a rapidly changing technical environment, those few additional years of educational participation may well be a critical factor in the rapid adoption of improved methods.

Dr Ironmonger's comments come at a time when the Labour government is attempting to develop a youth policy and a programme intended to attract 30,000 new students to secondary schools and technical and further education over the next three years, and 25,000 new enrolments in universities and colleges by 1990.

Helping China from space

The Chinese Academy of Sciences has launched a five-year space monitoring programme aided by a group of foreign universities. The project is intended to arrest an ecological disaster of yet unassessed proportions arising from a reckless land reclamation scheme which is retarding wheat production in the country's foremost agricultural area.

The region under surveillance comprises some 300,000 square kilometres in the North China Plain which produces 39 per cent of the nation's total wheat and 41 per cent of its cotton yield. Vast and rapidly growing stretches of land across that breadbasket region are affected by salinity and alkalinity, effectively postponing China's long-term objective of agricultural self-sufficiency.

The remote sensing project follows a visit to China by scientists of many disciplines brought together by the United Nations University (UNU) from 10 countries. UNU hopes that the collaboration will lead to improved consultation between the universities and agricultural development planners in many countries averting similar disasters in the wake of ambitious land reclamation programmes.

The visiting specialists were told that the local water table had declined by as much as 2.5 metres at some places.

President Jayewardene: briefed on incidents

Students flee racist attacks

from D. B. Udalagama
COLOMBO

Tamil undergraduates at the University of Peradeniya have fled the halls of residence, following a racist attack on them by their Sinhalese students.

It appears that English and Sinhalese notices at the university were found to be defaced whereupon the Sinhalese students are reported to have rounded up the Tamils and forced them to deface the Tamil notices. The Tamil students were reported to have been attacked and their rooms ransacked and ordered to leave by 6 a.m. the following morning.

Tamil students in a hostel of the medical faculty of the University of Colombo have also left, following another racist incident. The vice chancellor of the university, Professer Stanley Wijesundera has said that the incident arose between two individual students which some other people had exploited.

The chairman of the University Grants Commission, Dr. S. F. Kalpage, after discussions with the Tamil students of Peradeniya, briefed President J. R. Jayewardene who is also minister for higher education.

Mrs. S. Thondaman, a cabinet minister and president of the Ceylon Workers' Congress which represents plantation workers of Indian origin, also made representations to President Jayewardene. Mr. Thondaman has pointed out that the marshals and the wardens at Peradeniya had failed to give protection to the Tamil students.

The council of the Peradeniya University has appointed a three-man committee to investigate fully the events at the university in order to prevent a recurrence of such incidents.

Meanwhile lectures continue to be given at Peradeniya though no Tamil students are there to attend them. The University Teachers Association at Peradeniya condemned the attack on the Tamil students.

The vice chancellor, Dr B. Pandithanine, has been quoted as saying that lectures would be repeated when the Tamil students return. They have been asked to return to the university and assurances have been given that they will be given full protection.

Mexico to cut back on foreign scholarship grants

from Emil Zubryn
CUERNAVACA

Mexico has instituted a drastic shakeup of its scholarship grants, cutting back on subsidies by 50 per cent. This year the National Council of Science and Technology (Conacyt) will limit scholarships in scientific and technological disciplines to the 411 most qualified graduate students for study abroad.

Conacyt, which earlier this year (in January) claimed that not one scholarship would be cancelled, now has admitted that massive recalls have been ordered, gradually reducing the total of students abroad from a peak of around 2,079 to about half this number.

Dr Hector Mayagoitia Dominguez, Conacyt head, said the restrictions on foreign scholarships was motivated by the lack of funds, and the continuing Mexican economic problems. He revealed that of a requested 11 billion pesos budget ($74,600,000) Conacyt received half.

In the past, the sending of qualified Mexican scholars to continue post-graduate studies in foreign institutions, and for research, was based on a selective programme seeking the most capable graduates and those whose specialities could be adjusted to national goals. Apart from sciences and technologies, and the social sciences, scholarship holders were those deemed suitable to protect and increase national agriculture, livestock, forestry and the industrial sectors.

While concerned by the sharp reduction in scholarships for overseas centres, Dr Mayagoitia Dominguez said that this should not have negative repercussions, or increase problems for the development of the republic. Although foreign scholarships will be restricted to areas which cannot be studied in Mexico, he said that recalled students could continue their studies in Mexico. To this end he said that Mexico will still draw on renowned foreign scientists and other professionals with qualifications suited to Mexico's needs.

Returning to the difficult decision to withdraw Mexican students from abroad, Mayagoitia stressed that this was the direct consequence of severe readjustments and "harsh austerity measures" undertaken by the government through its economic reorganization programme. The sharp devaluation of the Mexican peso and its weak future prospects was another factor. Actually, the Mexican Treasury had ruled that it would not provide dollars for scholarships abroad except for postgraduate work which will continue to the social and economic development of the country.

Prior to the major cutback for scholarships, Conacyt had retired 100 students studying abroad because they "did not adequately justify funds advanced for their studies". Shortly after, it was decided to suspend 450 scholarships for the perfection of foreign languages abroad, with these studies now continuing in Mexico. Now with the "controlled" scholarship programme, which may even call for further suspensions, the expectation is that official investment in "serious" students will pay dividends. Once they start practising their professions they are theoretically committed to reimburse the government in the amount of scholarship funds received.

While in theory, the recuperation of scholarship monies has a sound base, it does not work out in practice. For example, while government statistics minimize the fact, there are over 9,000 ex-scholarship recipients about whom nothing is known. Recent researches by National University of Mexico investigators has stressed the fact that Mexico has constantly experienced a substantial annual loss in foreign exchange because students sent abroad by Conacyt, or other official organizations, scarcely ever return to apply their acquired knowledge in Mexico.

Overseas news

Protest over nuclear laboratory

from E. Patrick McQuaid
WASHINGTON

Nearly 200 protesters delivered "death warrants" to the president of Stanford University earlier this month, in opposition to proposed nuclear weapons-related research at the university's synchrotron radiation laboratory. Elsewhere, a staff committee on research held that a standing policy to judge projects on their scientific merit and not their potential application covers that proposal.

Several teaching and research staff had earlier expressed concern to the committee that they would be forced into involuntary servitude by providing beams used for weapons-related research at the laboratory.

The demonstrators paraded peacefully behind a skull-faced drummer, streaming in-and-out in single file through the president's office and piling their "warrants" on the desk of his chief-of-staff. Among several banners demonstrators carried was one reading "Keep Star Wars on the screen."

The president, Mr Donald Kennedy, has repeatedly backed the policy, which sets no limits on research based on prospective end-use. He agreed that a department within the university might adopt more restrictive rules than the institution as a whole but strongly questioned such a departure.

The controversial proposal was developed by scientists with the Lawrence Livermore, Sandia, and Los Alamos national laboratories, who seek $5m from the federal Department of Energy's office of military applications. Additionally, the University of California would provide $1m for its staff to conduct beam research at the Stanford facilities.

Mr Daniel Ellsberg, regarded as a veteran antiwar demonstrator, told the Stanford crowd that most of the students at the nearby University of California "are not aware that they're part of a bomb factory."

Clamp on foreign researchers

from E. Patrick McQuaid
WASHINGTON

Under new guidelines formed by a panel of university scholars and Pentagon officials, institutions receiving federal grants and contracts would be expected to bar foreigners from particular "sensitive" research projects and accept a 60-year pre-publication review of such data by government agents.

The specific conditions would be spelled out to individual grants and contracts between the government and the universities. The guidelines were discussed publicly during the annual meeting of the American Association for the Advancement of Science, held in Detroit.

Shortly before his resignation as deputy-director of the Central Intelligence Agency, Admiral Bobby Inman last year warned American colleges and universities that if they did not take steps to curb what he called "the haemorrhage" of technological data to the Soviet bloc, the government would have to restrict university-based research.

Since then the Pentagon has been engaged in a lengthy study of technology leaks in conjunction with the National Security Council and the Office of Science and Technology. It remains unclear exactly what the implications of the University-Pentagon agreement will be until this study is complete.

President Reagan, however, has issued directives that greatly expand the areas of research the government may label as classified despite a report by the National Academy of Sciences which concluded that the Soviets gained "little if anything of economic and military significance" by lifting data from unclassified research. The White House is expected to review the inter-ministry study and issue new policies of wider application concerning unauthorized technology transfer some time next year.

The consensus among American academics seems to be that some research must be protected and even among those who oppose government meddling there is an awareness that if universities do not take steps to control technology transfer, the government will.

Members of the panel reporting to the American Association for the advancement of Science agreed that the government might classify and impose pre-publication restrictions on grey areas such as research in a field of rapid technological change or direct military application.

Meanwhile, the legislation which regulates the flow of commodities materials, equipment, and information outside the United States is before the Congress for reauthorization. While revisions do not presently exempt colleges and universities from specific export controls, the foreign affairs committees of both chambers recently adopted language allowing for "openness" in scholarly research.

South African students clash with police

from Craig Charney
JOHANNESBURG

Violent clashes occurred after protests at two black South African universities following the hanging of three convicted black nationalist guerrillas belonging to the African National Congress.

Full details were not available but press reports said that at the University of Zululand, o police car and a shop were damaged after the conclusion of a commemorative meeting attended by 700 students.

Some 21 students were reported detained by security police in the Ciskei "homeland" after a one-day class boycott at Fort Hare University to mark the executions.

Meanwhile, student journalists at the University of Cape Town (UCT) have been convicted by a university disciplinary court after an incident in which they embarrassed a cabinet minister. They were charged after the UCT student newspaper published remarks the black affairs minister, P. J. Koornhof, made in a campus lecture although the principal, Dr Stuart Saunders, had told them not to.

The reporting of the minister's liberal-sounding remarks caused a political flurry as they appeared to contradict reaffirmations of apartheid by the ruling National Party in key by-election campaigns then under way.

Before the trial, 500 students staged a protest meeting at UCT, an English-medium white institution normally considered one of South Africa's most liberal universities. However, Dr Saunders forbade the campus media to discuss the dispute and barred the 18 students involved from speaking to the press.

Their June 3 trial was held behind closed doors and the number of students convicted has not been disclosed. Press reports indicated only that the judgment and sentence on those convicted will be kept secret until reviewed by the university council on July 6.

At the conservative Afrikaans-medium white University of Pretoria, a censorship controversy has also erupted over a liberal columnist in the student newspaper *Die Perdeby*.

Writing under a pen-name, the columnist offended many right-wing students of the country's largest university by criticizing the Pretoria city council's recent decision to close city parks to blacks, and by hinting that apartheid rather than communism was the real cause of last month's Pretoria bomb attack.

The chairmen of the students representatives council, Mr Ian Scott banned publication of the column in the June 3 edition of the paper, and a blank space with the word "censored" in large blue letters appeared instead.

Double talk at Harvard

Harvard University heard commencement address speeches from two principal guests this year. Solidarity leader Lech Walesa, the first choice, decided not to attend for fear of not being allowed back into Poland. Mexican author and statesman Carlos Fuentes agreed to stand in. But just days before the event a 12-page speech arrived from Mr Wolesa. Harvard decided to have exerpts from the Walesa text read out and Mr Fuentes delivered his address as planned.

Variety club

Leaders of 57 different American religious groups last week urged Congress to initiate action aimed at banning genetic engineering in humans. The committee, composed of Fundamentalist Christians, other conservative Protestant groups, 11 mainline Protestants, two Jewish groups, and 25 Roman Catholic bishops, were joined by six chemists and biologists at a New York press conference to say their stand was not "anti-science."

Staff reprimanded

The backlash from Dr John Darsee's misconduct at Harvard continues. At Emory University, in Atlanta, Georgia, medical school officials have reprimanded senior teaching staff responsible for supervising Dr Darsee's work while a resident and fellow in cardiology from 1977 to 1979, just before his Harvard appointment. Dr Darsee was barred from government-sponsored research for 10 years after it was learned that the had fabricated heart attack data.

Tent protest

Students at the University of Illinois, in Chicago, have protested against rises in tuition fees and cuts in state-funded support by erecting a "tent city" reminiscent of the great depression. About 100 camped for three days outside the student activities centre.

Police teaching's black side

A controversial set of essays writen by Hendon cadets caused a storm which spread from the police college to the lecturers' union. David Jobbins reports

John Fernandes: tried to 'beef up' seetlse of the courses dealing with prejudice

Relations between blnck people and the pollce are once more tense and strained on Brixton's front line.

Whatever the success or failure of community policing, when the flash-point ignites it is the deeprooted prejudice of black against police, police against black, which comes to the fore.

Striking evidenee of the prevailing attitudes of police recruits emerged late last year when a civilien lecturer at the Hendon poliee cadet school handed over 62 essays written anonymously by his elass to a television team.

The most inflammatory phrases from the essays immediately hit the headlines but an eminent educationist who read the entire hatch shared the horrified reaction of the lecturer; John Fernandes, at the general tonc.

The THES this week reproduces a selection of the esseys, broadly in proportion to the general groups into which they fell and outlines the developments since the London Weekend Television *Eastern Eye* programme was broadcast.

Fernendes asked his cadets to write the essays some time before April last year. He was seconded from Kilburn Polytechnic, and teaching on a multicultural studies course established at the request of the police. The course bridged two eohorts of cadets (confusingly called Phase I and Phase III) both taught by civilien staff, according to one report because they would have had light timetables if they had taught only Phase I.

Phase I cadets had already taken the multicultural course and it was felt inappropriate that they should take it again when they passed on to Phase III. At this point disagreement broke out between Fernandes and some of his colleagues on the unit and the school.

Influeneed hy the essnys, he sought to "beef up" the section of the course dealing with racial prejudice in British society and tackle head on the question of racism among the cadets.

But an idea, retrospectively backed by the Kilburn academic board, the police proposed a decision-making course for future Phase III cadets which, last summer, was adopted by the school. This was to be taught by police staff rather than civilians.

Fernandes and some of his colteagues saw this as further evidence of the police's "reversed" attitude to anti racist studies, reinforcing earlier difficulties over reaources and timetabling.

In a letter to the head of the school, Commander Richard Wells, in September, Mr Fernandes wrote: "We . . . have put in a lot of time and effort of our own in the last nine months to try to get this course off the ground, it has not been an easy struggle. Having had official approval from the academic board and you, we were settling down to tench the course only to find that decisions taken elsewhere jeopardize the credibility of the course."

Through a friend Fernandes, frustrated and desperate, approached the producer of *Eastern Eye*, Mr Samir Shar.

The authenticity of the essays has never been questioned, although during the *Eastern Eye* programme it was suggested that some cadets might have been having a joke at Fernandes' expense. But, says Professor Harold Rosen of Londen University's Institute of Edueation, jokes can be a serious matter too – if some of the essays were jokes.

He was presented with the 62 essays by the television team end horrified at what he read. "They were polarized – this seemed the most important thing. It is as though either the selection process tends to pick up people – or people ere attracted to the police – already having racist views, or their experience in the police leads them to have raeist views."

According to the professor the views expressed were not the wide range expected in a group of 16 or 17-year-olds. "Something was happening to push them down to one end of the spectrum."

He felt this should be of concern to the police, and he still feels that the response was inadequate.

Categorizing the essays is difficult because of the subjectivity of the issue. but about a third seem to show clearly racist sentiments. A hmndful, one of which is quoted in full alongside, are positively against racism and would like to sea it excised from the police force. The majority, while not actively racist, transfer the roots of conflict to coloured people themselves and their apparent inability to adopt British working class values.

Only a few refer to the underlying causes of discontent such as poor housing and unemployment. There are frequent references in requests for further information on the National Front, oftee as the initials NF.

The need for tighter immigration controls is a recurrent theme, and the role of the police is discussed only occasionally. There are one or two references to the Scarman report – odd, given that the essays were written in the period to April 1982 when the report was receiving widespreadattention both in the police force and elsewhere.

The immedinte steps against Mr Fernandes were 'disciplinary. Commander Wells feeling that a breach of trust and professional ethics had been committed, excluded him from the school. He could not take further action as Fernandes was technically employed by the Labour-controlled Brent borough council. But he is adamantly refusing to reinstate him.

Mr Fernandes' actions and the response to it by the police, Brent and this union, have tended to cloud the original issues of police racism and how education can seek at least to contain it.

A selection of the essays

BLACKS IN BRITAIN
The amount of blacks allowed into this country was too much. They all came over here and took money off the government, they took social security, went out with white women and took the white man's job. Some blacks are respectable but the majority cause a lot of trouble. Not perhaps their fault, they live in slum areas one reason why they do perhaps cause trouble. That is probably the only area that they are accepted. They receive a lot of hassle from white people because a white man doesn't like a blackman keeping him out of a job. The fact is they are now not a minority but a definite group of resented people, They are a big enough unit to now fight back at the white onslaught, and consequently they were a big factor in the last summer riots. It makes me cringe when I see a black bloke going out with a white woman, what the attraction, to a black male is (blackmail get it?) I don't know. England is a traditionally white country and that is how it should stay, the blacks must accept that if they are to live in this country they must fall in line under white dictatorship and not try and run the country themselves from the back-street slums.

TOPICS TO DISCUSS
NF
Riots
Can a 12 bore shotgun blast a blackman into tiny pieces at 12 yerds
Do mantraps successfully snap a blacks leg
Do black people burn well (struck out) better (substituted) with oil or petrol.

BLACKS IN BRITAIN
I think that blacks and all ethnic minorities seem to go around carrying a chip on their shoulder and thinking they should be treated different from other people which is half the problem. Every time that a black person is stopped in the street the first thing that they say is 'You only stopped me 'cos I'm black' which is a load of rubbish. There is bound to be racial hatred from some people because that is just human nature but if they are not prepared to put up with it then they can leave the country.

BLACKS IN BRITAIN
Really there is no difference between Black and White we are all human but it is the blacks that have a chip on their shoulder about being black that really antioye me, no wonder they come under such pressure from the police. Until they remove this large boulder from their shoulders there will never be racial harmeny. Moves to bring us all equal are being made there is even a song in the charts called Ebony and Ivory sung by Stevie Wondar and Peul McCartney, two prominent people from each society and reflects the changes.

But quite personally and although I wontdn't go out of my way to harm or Intimidate them I don't really like the black Bigmouths who tend to think they are Gods Gift. Sure you get Big Mouth Whites but at least they no when to stop and to me do not seem to attract as much attention as the blacks maybe its the way I have been brought up but I still wonjdn't have them. But my last message is SEND THEM HOME.

BLACKS IN BRITAIN
The Blacks are here and there is nothing we can do about it. I'm not saying I'd want to de anything against them because I have got a tot of black coloured friends but not many Astan. Obviously I disagree with the black youths who come here to live and then start fighting in ripts and smashing up areas where I live, but to stop them we have to view their reasons for doing so. this mindless violence. Every time there is a cause usually poorer living conditions, poorer pay and the usual discrimination which is pretty bad since we're supposed to be living in a civilised society.

I have a Persian beother-in-law who has lived here since he was 15 away from any of his family and has obviously faced a lot of prejudice. I knew through him, what it is to feel hated. I personally would like to remove this prejudice from the police force and quickly because I here had bad first hand experience of police being prejudice.

Another view is that I'd personally like to kick the heads in of all the cadets who are prejudice yet have never met a coloured or black and just go along with their mates and simply use the colour as a way of separating them from us and using them as scape goats. It is not their fault they easily adapt to our working conditions which the Britains can't.

TOPICS TO DISCUSS
What do you think about the prejudice cadets, should they be ejected

BLACKS IN BRITAIN
The majority of blacks in britain today are just hard working people the same as ourselves. Those that were born in britain have a right to a job and all the National benefit schemes. However there are those who came to our country not only blacks but just as an example who arrive here with no job, no home and not much money who expect the government to supply them with housing, a job and dole money if they can't get work. I don't mind living side by side with blacks but some of them are plain ignorent troublemakers who shout racial abuse at any sign of trouble and also at the government if they don't get what they want.

How Fernandes fell out with Natfhe

John Fernandes la now embroiled in an intractable dispute not only with the police school but with his own union.

When banned from the school he declined to accept aid from the National Association of Teachers in Further and Higher Educatioe on a confidential "easework" basis, preferring the support of his branch at Kilburn Polytechnic for a wider campaign within the union aiming for reinstatement to himself and the anti-racist elements of the multicultural course.

General secretary Peter Dawson was drawn to describe this attitude as "unique" in his 14 years with the union.

Prior to Mr Fernandes' exclusion on December 2, the Outer London regional council passed a resolution supporting the staff involved in the dispute, but the first the national lesdership officially knew of it was a request for support for strike action received the following day. The request was rejected by officers, but the half-day strike went ahead.

Oe the ssme day the Breet Natfhe tialson committee, faced with the threat withdraw all civilian staff from the school, expressed its opposition of the withdrawal, a view overwhelmingly endorsed the following day at a meeting of 20 of the school staff. The school staff present voted 16-2 to refuse to obey any instruction by Brent to pull out of Handoe.

Faced with this developing split between Fernandes, supported by the Kilburn Polytechnic branch, and the school staff supported by the rest of the liaison committee, the national executive identified the threat of withdrawal as the male issue when it met on December 10.

The line being pursued by the regional executive was considerably tightened up when the regional council met early in February and demanded the restoration of the course under Mr Fernandes' direction. By this time Kiburn branch was becoming increasiegly isolated within Breot for its unqualified support of the local authority's tough stance.

By March 3, when the liaison committee next met, the gulf had become intolerable. A catalogue of incidents, the interpretation of which is highly controversial, led the liaison committee to call on the "good offices" of the regional executive to stop Kilburn actively and publicly campaigning against union policy – its support for the threat to withdraw the staff.

By this time the staff at the school had already broken away to form their own branch – a move endorsed by the regioeal liaison committee and effective from February 23.

Of the 26 staff then at the school, 21 voted in favour. Although the sites are some seven miles apart, there was far more to it than the convenience of attending meetings.

At national level the union's first substantive response cams at a national executive meeting in mid-January. Many members of the executive, not alerted in advance to the programme, had only learned of the row over the essays from press reports. To this day none has seen the essays themselves.

They attempted to retrieve the situation by calling for a return to the status quo – ie reinstatement of Mr Fernandes pending discussions with Commander Wells and Brent.

In a statement it said: "The association deplores the arbitrary exclusion of any member from the school and seeks an immediate meeting with the appropriate police authorities."

It went on to say: "The associatioe does not believe the withdrawal of (civilian staff) against their will to be a constructive solution and it cannot be accepted by thair trade union. It calls oe the Brent authority, which has a promioent position in the field of race ratiotns, to refrain from sueh an action and play its full part in ensuring an acceptable education for police eadets."

Nevertbeless Brent, determined to take a hard line with the school, and accepting that legal action to force Mr Fernandes' reinstatement was not on the cards, went ahead.

At the beginning of the summer term, staff were told not to report to the police school, but to enter into discussions with officials about redeployment elsewhere in the borough.

Councillors gave ae undertakieg that there would be no compulsory redundancies as a result, but unioe leaders remain sceptieal.

In the event the school was split down the middle. Nine, including the remainder of the multicultural unit, defied their unioe, and obeyed the authority's instruction. Sixteen stuck with Natfhe and reported for work as usual.

Also at its January 15 meeting, the executive decided to set up its own full scale investigation into the Hendoe affair and its wider ramifications.

That committee, initially chaired by Mr. Frank Griffiths of Teesside Polytechnic, presented its interim report two months later, having met six times.

Its conclusioes were that Mr. Fernandes' actions had been doubly damaging both professionally and to the case he sought to advance.

"Had the content of the essays been dealt with professionally at the time they were writtee, progress with the police would have been made sooner on the issues of police recruitment and the inclusion of appropriate elements of racism awareness training and self-racist studies in police training.

"The disclosure of the essays to and by the media so long after they were written and the failure beforehand to provide the association with an opportunity to act decisively and vigorously to raise the racism revealed within them has actually hindered rather than advanced the continuation and improvement of anti-racist teaching for all cadets."

This view was supported in a letter circulated by the union from Ms Marion Gerrard, a civilian member of the Matropolitan Police working party on human awareness training for recruits. Sha remarked that at least some senior officers were beginning to take the issue seriously.

"There will no doubt have been (and remain) strong opposition within the force to the initiatives being taken to improve race training – certainly if the attitudes revealed in the John Fernandes essays are in any way typical. It is therefore of critical importance that we welcome those initiatives which have been taken and encourage their further development. I . . . believe the John Fernandes incident and attendant publicity to have been a serious setback."

The group's acceptance of the view that academie freedom is not infringed at the school has been challenged by six members of the multicultural unit in a letter signed additionally by others in response to the report.

It quotes from minutes of a meeting between Commander Wells and a Natfhe official in December 1982 that "the commissioner reserves the right to decide what is taught and by whom. There is no room for negotistion around this statement."

Efforts to raise the Fernandes case at Natfhe's annual conference lsst moeth were uesuccessful but served to underlina the severe divisions which the disclosure of the essays and subsequent eventa had aroused among the union's members especially le the London area.

Natfhe's outer London regioe which covers the Brent area, was deeply split even over an attempt by the West Midlands region to secura a debate on the leadership's handling of the affair le private sessioe.

Only deft footwork from the chair by the then president Mr Chris Minta avoided a vote oe whether the issue should be aired in which a third of the outer Loedon delegstion would have been le support and the majority firmly against.

Now the issua is to be dealt with by the union's July councile camera.

The union is facing a crisis which can produce eo winner. The probability of Mr Fernandes being able to return to teaching multicultural studies at Handon is low; in a sense this is secondary to the impact of the affair on Nstfhe's hitherto uecompromising opposition to racism.

Masterminding the merger

John O'Leary meets Derek Birley, the man chosen to set up Northern Ireland's new merged polyversity

Seven months after his appointment it seems hardly credible that there wss ever any doubt that Derek Birley would hesd Northern Ireland's intriguing polyversity, so closely has it become identified with his leadership. A strong character who inspires strong reactions, both favourable and unfavourable, among academics and students, he is very much in charge of the merger of Ulster Polytechnic and the New University of Ulster.

As a man with a keen sense of humour, he can see the irony of plotting the shape of the revolutionary new institution from the Jordanstown School for the Deaf and the Blind. It is a messure of his self-confidence that he had no qualms about offering his critics such as obvious target when he vacated the rectorship of the polytechnic sed moved out of the main campus.

The move (albeit just round the corner from the polytechnic) is one example of Mr Birley's continuing effort to convince those at the NUU and its constituent college in Londonderry, Msgee, of his impartiallty. Eventually, he will be msking an even more symbolic gesture, basleg the headquarters of the university at Coleraine.

Although the role of diplomat is not only which seems to rest most comfortably on his shoulders, the "firm but fair" imsge which he is projecting does seem to be getting over. There undoubtedly remains some strong opposition both to Mr Birley and to the merger itself, but a msjority on, all three campuses have now been won over, however retuctantly. It will be sarprising if significant opposition is encountered in the forthcoming round of meetings which will be asked to surrender the NUU charter.

That the transition should be progressing apparently so smoothly seemed highly unlikely last yesr is the midst of the wrangling which followed the merger anaeouncement. The Govemment plan, announced in March by Mr Nicholas Scott, the minister responsible for higher education in Northern Ireland, came like a bolt from the blue to all concerned. Mr Birley is critical of the way in which the scheme was sprung on an astonished province, regarding the bald aenouncement as insensitive and leading inevitably to suspicion and automatic opposition. . . . But he is even more severe on the Chilver committee, whose report on Ulster higher education prompted the merger decision, though making quite different recommandations. Mr Birley describes tha Chilver proposals, for an even smaller and more specialized NUU operating witbin the framework of a new committee to oversee higher educatioe in the province, as "a nonsense and an outrage". He believes that the report's conclusions did not follow from its analysis of the situation le Northern Ireland and would have provided no solution for Coleraine.

For all of its pitfalls, geographical and academic, philosopical and practical – not to mention personal, since his own job was on the line – Mr Birley bas been a supporter of the merger from the start. Many of his own staff and students at the polytechnic were as sceptical as their university counterparts at the outset, fearing that the vocstional ethos of a successful Institution would be threatened by academic drift, and that their own role in the polyversity might be downgraded.

Mr Birley was confident that the polytechnic was sufficiently stroeg to wie through on both counts end made no bones about his determination to become the vice chancellor. Though the period of uncertainty over the intentioes of Dr Wilfred Cockeroft, the NUU vice chaecellor, caused some embarrassment, Mr Birley bas eo qualms about the decision of the steering group overseeing the merger not to advartise the post. He points out that staff in both institutions were adamant that there should be an internal appointment and draws the conclusion that any controversy over the post was unnecessary.

In spite of the objections raised over the appointing procedure, many close observers admit that Mr Birley would have beee hard to beat regardless of how widaly the eat was spread. His public sector background would have been an obvious disadvantage with any other vice chancellorship, but the new institution was a special case. Even Sir Edward Parkes, chairman of the University Grants Committee, conceded in avidence to the Commons Select Committee on Education that the polytechnic had to be regarded as the senior partner in this merger.

One might have thought too that he would be at a disadvantage as an Englishman. But 13 years in Northern Irelsnd, building up the polytechnic from scratch and coping adeptly with the political and religious minefield that makes up the province made nationality all but irrelevant. Not surprisingly, he now regards himself as an Ulsterman by adoption and has little desire to return to England.

He was attracted to the province in the first place after reading an account of life at Queen's University by Lord Ashby, then its vice chancellor. Disillusioned with life as a loeal education authority bureaucrat in Liverpool, the challenge of a "green fields" site with direct funding from the Department of Education in Northern Irelsed proved a sufficient lure. Apart from a brief period at Cambridge University, all Mr Birley's working life after four years' service in the Royal Artillery had been spent in local authority employment, first as a schoolmaster and then as an education officer. Six years as deputy director of education in the constantly shifting political environment of Liverpool bed given him both the experience in higher education necessary for a successful application and the incentive to get out.

Once established at the polytechnic, Mr Birley worked hard to create a good relationship, "one of mutual trust", with the DENI, while basing the institution's future on links with commerce and industry, rether thae the politicians. Like many in Northern Ireland, let alone those who have seen local government infighting at first hand, he has a general disregard for politicians, although Mr James Prior, Secretary of State for Northern Ireland and Mr Scott, whom he has seen at close quarters through the merger negotiations, are exempted.

> The result of this groundwork with the DENI has bees a level of funding which has been the envy of colleques on both sides of the Irish Sea. "We were able to show that there was no padding in our estimales, which was quite a eovel concept for them," he says. "It meant that we were treated seriously when we put forward a proposal and we were able to get things done.

Mr Birley was never one of the group of directors pressing the case for polytechnic charters – indeed, he was eever even a member of the Committee of Directors of Polytechnics, having been rebuffed initially oe the surprising grounds that the CDP covered oely England and Wales. In any case, far from being an opponent of the Council for National Academic Awards, he has been ae active participant in its affairs, chairing the education committee and wrestling with the thorny problems of tescher training qualifications. But tha experience of Ulster's direct funding compared with life in Liverpool has left him a strong advocate of central, rather than local control of higher education.

He would hope to retain links with the various validating bodies, including the CNAA, which have overseen the rise of the polytecheic, although their role would change to a besically advisory one. "I would expect us to have a loose relationship with CNAA," he says. "But there is no question of creating the first CNAA university end any relstionslp with validating bodies would be purely voluntary."

Likewise at sub-degree level, advice and assistance will be sought but the university will almost certainly award its own qualifications. "One of the great advantages of university status is that we will be able to integrate courses at different levels," says Mr Birley. "We will have external validation at the planning stage, as well as a full review avery seven years, but we will obviously have much more freedom."

Such flexibility is a key element in Mr Birley's attitude to the new institution. He is a vigorous critic of the binary line in higher education. "If that is all the policy we have then it is pretty pathetic," he says. "I have long argued that we are obsessed with institutions in Britain and the binary policy is one example. I hope that the merger may set some sort of a precedent, but not leading to further piecemeal mergers."

> The result has been a level of funding the envy of colleagues both sides of the Irish Sea

The panicular conditions which brought about the Ulster merger and the unavoidable geographical separation which will result make it an unlikaly model for the United Kingdom in Mr Birley's ayes. But the very fact of its existence he hopes will encourage furtber breaking down of barriers, leading eventually to a single system of higher educatioe.

The University Grants Committee working party looking at higher education in the province is another welcome step towards his goal of stronger institutional planning. He says: "I would have liked the working party's remit to bave been wider, covering teacher education and all of advaneed further education, but I am quite satisfied with it. I would have liked it to be looking at the whole question of how to keep young people from going across the water to England to study, but we must all be doing that."

He expects the working party to help reestablish good relations with Queen's University, which got off to a bad start when Dr Petar Froggatt, the vice chancellor, joined and then left the merger steering group ie quick time after describing the eew institution as a spoiled child which would take an unfairly large share of Ulster's higher education budget. Mr Birley describes the affair, which he admits has left a degree of tension still, as "a family squabble" which will blow over. The fact that the majority of the new institution's staff have connectiona with Queen's will ensure this, he thinks.

The pockets of opposition which also exist within the new partnership are also expected to diminish as further progress is made towards the actual merger. Mr Birley is anxious to move on to what he describes as "the functional phase" when a "proto council and senate" can be appointed to take over from the steering committee. He believes that the steering committee has fulfilled its potantial and that it is time to move onto detailed planning, which has to be carried out by those who will be responsible for the university.

Once this process is under wny, Mr Birley believes that the present institutional loyalties will be forgotten to some extent aed replnced by departmeetal considerations in a new internal scramble for resources. Since the university is to be organized on departmental lines, with some subjects being taught on all three main campuses, identification with the present institutions ought, in theory, to be reduced. Although provosts will be responsible for the Coleraine, Jordanstown and Londonderry campuses, their role will be primarily administrative and pastoral.

> In fact, his priority will be to develop Londonderry as a centre for higher education

For the moment, however, Mr Birley is aware of the suspielon which exists at the NUU both about the detailed outcome of the merger and about him personally. There is little doubt that his laadership will mean some changes which will prove unpalatable at Coleraine. On research, regarded research as important, but I want it put oe a proper footing with a research committee. I do not believe it is for massaging people's brains or to put on application forms."

He believes that the Coleraine campus has a brighter future in the new institution, but his style still inspires for example, he says: "I have always fear from some. He is not trying to emulate a traditional university and there is no way that the desires of all those at the NUU can possibly be accommodated in the new scheme of things. One close observer of his period in charge of the polytechnic says: "He decides what is the consensus and then enforces it."

No decisions have been taken about the distribution of departments between campuses, but Mr Birley is not concerned to match the notional student capacity of each. "I am not going into this thinking: 'I've got all these buildings. How am I going to fill them? That is the road to nowhere," he says.

In fact, his priority will be to develop Londonderry as a centre for higher education, both in terms of numbers and qualifications offered. He is dismissive of proposals to give the city its own polytechnic, taking Magee College out of the new institution, claiming that only Sinn Fein of the political portica takes such a line. "If this is what the select committee wnnts, it can only be an example of collective guilt about the sitting of NUU and an attempt to turn tha clock back. A Derry Polytechnic would be even smaller and more narrowly based than NUU. It would be quite unworkable now, far better to develop the existing colleges and to press for 'redeorn money' from the Government to do that."

The merger is now firmly on schedule for the intended amalgamation date of October 1984, although Mr Birley does not expect substantial changes in existing arrangements in the first year of operation. Nor does he see the need for all duplication between the new institution and Queen's to cease: "One rationalization per decade is enough for anyone." But it is a safe bet that well before the end of the decade, the University of Ulster will have emerged as an institution unique in the United Kingdom – and very much in the style favoured by Mr Birley.

Thoughts of revolution

Craig Charney on how South African intellectuals are facing the new divisions of left and right

Nadine Gordimer, the novelist who wants a culture of reconstruction

The prospect of revolution is impelling a realignment of South Africa's intellectuals. Some welcome it, most dread it, but more and more have been forced to choose sides.

In the past, South Africa's intellectual life was largely compartmentalized by language and colour divisions between pro-apartheid white Afrikaners, liberal English whites, and blacks. To older figures, like Professor Philip Tobias, former dean of Witwatersrand (Wits) University medical school, "There is no South African intelligentsia."

Now that is changing. As Glenn Moss, a 1970s student leader who now edits a social science journal, *Work in Progress*, says: "There is a process of polarization in the face of crisis." Left-right divisions are cutting across the racial and ethnic boundaries, while non-conformists face increasing hostility.

The most profound changes have taken place at English-medium white universities like Wits. "Earlier, the debates were between liberals and ideologues of apartheid," according to Dr Duncan Innes, a Wits lecturer who recently returned from 10 years in England. "When I came back, the debates tended to be between neo-Marxists and the liberals on the one hand, and between neo-Marxists and the ideologues of apartheid on the other."

Rifts have opened between the pre and post-1976 radicals. When the older generation grew up, the black nationalist movements and the Communist Party (CP) had been crushed. They were radicalized by the 1968 student rebellions and new left authors like Marcuse. Their classic statement was the late Rick Turner's book *The Eye of the Needle*, a plea for a democratic, socialist South Africa based upon worker self-management.

As a Wits sociologist puts it: "Now they would look at Solidarity for their inspiration, not to the Soviet Union." Many got involved with fledgling black trade unions.

The political consciousness of today's students began with the black uprisings of 1976, and they have been attracted by the subsequent resurgence of the banned African National Congress and the highly orthodox CP.

Despite its divisions, however, the left has become strong enough for an intellectual parting of the ways with their liberal colleagues. In the 1970s, Mr Moss say, "The left was incredibly weak. It had no organizational clout or representation at faculty level. It tended to be taught by junior lecturers. That absolutely necessitated reliance on liberal tolerance to exist. It's much less of a question now. Junior academics have become senior academics, and courses have changed."

The result has been something of a crisis for the older liberal academics who still predominate at the English universities. Says Professor Tobias: "The disengagement between the left and the liberals means the liberals are free-floating."

At the same time, he notes, the rise of an urban Afrikaner middle class has moderated the harsh racism formerly shown by Afrikaner thinkers. "A large number of the disengaged liberals are finding links in that direction, which inevitably means a diluting of their liberal principles," he says. Even venerable liberal author Alan Paton has declared: "I no longer support majority rule in a unitary state," preferring a federal system designed to hamper black radicals.

Liberal intellectuals are displaying far less interest in the historical and moral critiques of apartheid which marked their work in the 1950s and 1960s, or in the theoretical debates with Marxists of the 1970s.

Today's leading liberals, such as Professors Lawrence Schlemmer and Jill Nattrass of Natal University, and Professor David Welsh of the University of Cape Town, are pragmatists. They stress practical, policy-orientated research aimed at renovating South African capitalism, pressing reformist blueprints on government, and acting as an informal "brains trust" for the liberal white and black opposition.

Liberals themselves, however, are divided on how to accommodate the black majority; torn between the desire to win their support and fear of their economic and social domination.

A similar division was strikingly evident in the recent public polemic between two leading *verligte* ("enlightened") Afrikaners, Professor Sampie Terreblanche of Stellenbosch University and Professor Johan Du Plessis of Pretoria University. The debate was in the English language press, a sign of the new openness which has replaced the old Afrikaner monolith.

Verligte thinkers have displayed a new urgency since 1976, painfully aware of the threat of black unrest. P. W. Botha, the *verligte* prime minister elected in 1978 by the ruling National Party, is far more willing than his hardline predecessor to make use of them.

He has called on *verligte* intellectuals, as well as moderate English liberals and businessmen, to staff a swarm of commissions housed on South Africa's social problems. "The attitude is practically, if you have a problem, we'll appoint a commission," says one government insider.

The *verligtes* have abandoned the explicit racism, support for petty discrimination, and hostility to business which mark traditional Afrikaner thinkers.

However, there are still important differences between them and the liberals. *Verligtes* substitute "cultural groups" for races, and then assert the existence of white "group rights" and identity which must be protected, in sharp contrast to the liberal concept of individual rights.

The splits among white intellectuals have had parallels among blacks. "If one looks at the first half of the century of black intellectual life," says Dr Noel Chabani Mangatyi of the Wits African Studies Institute, "the kind of education these gentlemen received was immersed in liberal values."

As quality declined and state control increased in black education after the NP took power in 1948, he continues, "the earlier liberal values and sensibilities that kind of education created disappeared – and the quality of power became much more manifest." These factors fostered radicalism in younger students.

For black and white, the tensions of South African society are finding expression in literature and the arts. There has been a black cultural revival since "black consciousness" took off in the early 1970s, with most of the output some sort of attack on apartheid. Of the major books by black authors in recent years, such as Miriam Tlali's, Mongane Wally Serote, Mtutuzeli Matshoba, or Sipho Sepamla, almost all fit into this category. At least four novels have been devoted to the 1976 uprisings alone.

Black writers and artists suffer from a whole gamut of constraints, not least inferior schools and censorship. But a more significant problem is that political commitment is widely taken to mean supressing individualism, with introspection precluded by sloganeering. In addition, blacks undoubtedly suffer from their isolation from Africa by the cultural boycott.

Among white writers, particularly the established, internationally-known English speakers, *a fin de siècle* atmosphere prevails. Two warmly-received recent novels by J. M. Coetzee (*Waiting for the Barbarians*) and Nadine Gordimer (*July's People*) dealt with the importance of liberal whites in the face of revolution. In both language groups, there is a notable shortage of new literary blood.

In other arts, however, there are a growing number of cooperative attempts by young blacks and whites to confront South African realities and construct a common culture. This was shown dramatically when hundreds from both races went to meet exiled South African artists at a conference on culture and resistance in Botswana last year.

There, Ms Gordimer presented a widely discussed paper calling for the creation of a "culture of reconstruction" spanning the racial divide. While the new departures she lauded pose no threat to the imported West End comedies filling most Johannesburg stages, they are likely to have a growing influence upon young leaders.

Young black and white artists are working and showing together in many cases. Many new theatre companies build inter-racial workshops, while others, like Johannesburg's Myth Inc, are confronting issues which drive their elders to despair – such as the role of white liberals – with optimism instead. There is also a minor boom in the production of "relevant" low-budget films and videos by multiracial groups.

The surprise recording success of the 1980s has been a band called Juluka, a group of whites and blacks who sing Afro-rock songs in Zulu and English. *Woza Albert*, a light-hearted but pointed fantasy about the second coming in South Africa performed by two blacks, has likewise played to full houses in both white suburbs and black townships.

Indeed, in some ways the intellectual scene in South Africa is reminiscent of that in Russia before 1917. Here, as there, the majority of the intelligentsia is comprised of cautious, conservative liberals, with a radical minority divided between different Marxist tendencies.

Time will tell how close the parallels really are.

The unexpected stroke of genius

Fouad Ajami was in his New York apartment last June, agonizing over the Israeli invasion of his native Lebanon, when a call came from J. Roderick MacArthur. MacArthur, a son of the late billionaire John D. MacArthur, was calling to tell Ajami, a political scientist at Johns Hopkins University, that he was one of 19 newly-named MacArthur prize fellows and would receive $188,000 (£117,000) tax free over the next five years to use as he wanted. Ajami was incredulous. "I had heard of the foundation but I never thought I was under consideration," he said.

The foundation is the John D. and Catherine T. MacArthur Foundation in Chicago which, in the past five years, has catapulted to become one of the top five private philanthropies in America, with close to $1 billion in assets.

Pundits have dubbed the programme the "genius grants". The aim is to identify persons of high promise and originality in many fields who may make what the foundation calls "significant contributions to society". Since May 1981, 80 fellows have been named and more than $5m has been paid out.

The prize's intent is to relieve recipients of economic and professional pressures so their minds can roam widely. They are free to change fields or the basic direction of their careers. Prize fellows are not even required to file reports on how they spent the money. Norton Kuy, a foundation official, said: "So far nobody's gone to the track and blown the money."

In these parlous times for foundations, MacArthur is one of the few places able to make such a grand gesture. The Ford, Rockefeller and Carnegie foundations are in the throes of organizational upheavals and declining endowments. Their sights are more on the bottom line than the cutting edge. The unusual, no-strings character of this programme has captured the public's attention and fancy; it is as singular and eccentric as the man it honours.

John D. MacArthur borrowed £2.500 (£1,600) in 1935 to acquire the financially-troubled Bankers Life and Casualty Company of Chicago. Bankers became his passport to a vast personal fortune. Through the use of pioneering mass mail-order techniques, he expanded Bankers Life assets past $1 billion by 1977.

He ran his empire of 12 insurance companies, shopping centres, hotels, banks, radio and television stations and New York City office and apartment buildings from a booth in the coffee shop of a Palm Beach hotel. He owned the hotel, and lived upstairs with his wife in a modest apartment overlooking a parking lot. When he died in 1978, he was one of the three wealthiest men in America. MacArthur was clearly a twentieth-century original.

When MacArthur died, he purposely left no guidelines on how the foundation should be run. He reportedly told a director: "I figured out how to make the money. You fellows will have to figure out how to spend it." This year, that directive translates into spending choices of over $50m.

The prize fellows' programme was the first initiative undertaken by the foundation. In seeking a philanthropic identity, the board chose to fund exceptional individuals rather than support projects. The idea of gambling on creative people came from two researchers, Dr George Burch of Tulane University and Dr Leigh Van Vulen of the University of Chicago. Burch felt that even one great discovery would justify the cost of the entire programme. Van Valen lashed out at the corrupting character of the traditional grant process. There was, he wrote, an "incompatibility in practice between honest grant applications and conceptually original work".

The selection committee, headed by J. Roderick MacArthur, held its first meeting in September, 1980 and named the first 21 fellows the following May.

How does someone win a $300,000 (£187,000) no-strings prize? Like equally famous but poorer Nobel laureates who collect $190,000 (£118,000) the process is anonymous and confidential. Candidates' names are submitted by a group of roughly 100 nominators. The foundation will not reveal any more about them, except to note that nominators are drawn from a wide number of fields and normally serve a one-year term.

Kenneth Hope, staff director of the programme, gave three reasons why a nominating procedure was chosen. The size of the prize made objective applications impossible; the foundation wanted the unsought character of a prize for tax purposes; and echoing Van Valen, "we wanted to avoid grantsmanship in all its pejorative contexts".

Once a person is nominated, a file is initiated. Personal data and references from experts in the nominee's field are gathered. The foundation tries to keep the entire process secret to preserve surprise. Hope estimates that 85 per cent of the winners had no clue they had been nominated. As one winner commented: "It was as though an elephant fell on my head."

Possessing the right blend of talent, self-direction and future promise isn't always enough to win. Timing is also crucial. The committee, according to Hope, asks each candidate whether now is the right time to make such an award. The aim is clearly on finding people whose best work lies ahead but a premature award may overwhelm a recipient. The accent is on youth (38 fellows were under 40 when selected) since, as MacArthur says: "We'd like to find the person before he gets cnopted."

For early religions scholar Elaine Pagels, the timing was right. "The grant came at a point in my career when the pressures were most intense. I was chairman of the department at Barnard, teaching full-time and raising a small infant. I don't know when I could get back to my research. It was amazing to be given a gift of time." She was on leave the past year and will teach only part-time at Princeton next year.

Since the programme is only two years old and no reports are required, an evaluation is premature. So far, the programme is unique, a venture of some risk and a media darling.

However, a curious and overlooked pattern emerges from studying the credentials of the 80 current prize fellows. Of that number, 56 are university-affiliated. Such a number seems disproportionately high and out of character with the entrepreneurial spirit of the foundation's founder. While the selection covers a wide spectrum of specialties and geographic areas, 32 fellows are clustered at seven universities: Princeton (seven), University of Chicago (five), University of California at Berkeley (five), Massachusetts Institute of Technology (five), Harvard (four); Stanford (three) and Columbia (three).

The 24 independent fellows include numerous writers and poets, two typographers, two journalists, a community activist, an eye surgeon working in the bush in Kenya, two filmmakers, a lawyer, a literary translator and two scientists at Bell Labs. Glaring by their omission in a prize devoted to creativity are any visual artists, any musician, playwright or dancer. And are no business people up to the mark?

MacArthur said of the programme back in 1981: "It is probably the best reflection of the rugged individualism in my family father. He believed in risky betting on individual explorers while everybody else is playing it safe on another track." Judged by that standard, the programme seems on the *same* track as most of the Nobel awards, National Science grants and government contracts – locating creative endeavour inside ivy-covered walls.

The nomination process needs to be broadened to avoid the danger of peers promoting themselves. Hope admits that only half the 100 nominators come from the academic world. He says the preponderance results from the ease of tapping academic networks. Unlike other fields, the professoriat is used to evaluating peers and writing recommendations, steps critical to the selection process. It is hard, however, to believe that a foundation of Midas-like proportions should have trouble tapping other networks.

The next group of MacArthur fellows will be named next month. As the programme approaches the 100 mark, it will be instructive to study the backgrounds of the newest winners. It would be a shame if this programme, begun with the best of intent and trumpeted as being daringly different, fell into the trap of being more of the same.

Tom Mullaney

Roy Wallis speculates on the role of the leader in new religious movements

Charisma and machismo

Among the plethora of new religious movements which grew to prominence in the 1960s and 1970s, one could have expected some bizarre extremes to appear on statistical grounds alone. But statistical distribution does not take us far in our understanding of the behaviour of Charles Manson, Jim Jones, Chuck Dederich and Moses David Berg, nor of their respective followers. But I must not presume that these names resonate for everyone as they do for me. For some of my students, Charles Manson is already "early modern history".

Manson, viewed by some of his followers at least as Christ returned, was the instigator of a series of savage murders in California, including that of Sharon Tate in 1969. Jim Jones, founder of the People's Temple, led 900 of his flock into cyanide suicide in the jungles of Guyana in 1978. Chuck Dederich, once reformed alcoholic and founder of the Synanon religion, egged his followers on to attacks on neighbouring farmers and the attempted murder of critics and opponents, one of whom was severely bitten by an enraged rattlesnake left in his mail box with its rattles removed to give no hint of its lethal presence.

Violence was an element common to each of these movements, but they were extraordinary too in respect of their sexual practices. Manson initiated virtually all female members into the sexual lifestyle of his following, often first making love to them while both were on acid and instructing the girl to imagine he was her father. Thereafter, the Family women were expected to be available for sexual contact at all times and with whomsoever Manson indicated.

Jim Jones engaged in sexual liaisons with many of his followers, both male and female and regardless of their marital status, boasting of them to his congregation. Chuck Dederich, more conventional in this respect, only took another wife after the death of his first wife Betty and instructed all loyal followers to do likewise, divorcing their present spouses and remarrying partners sometimes suggested by friends and often of a different race. Male followers had enormous pressure placed upon them to secure vasectomies and pregnant women to obtain abortions.

Although violence has not at all been a feature of the Children of God (sometimes known as the Family of Love), its sexual practices have become notorious. "Moses" David Berg, the movement's now elderly founder early cast off his first wife for a new young follower, but he also entered into a multiplicity of sexual liaisons with other female followers. He encouraged his followers to abandon sexual monogamy, to enhance bonds of solidarity by sexual "sharing" widely between male and female members. *In extremis*, lesbianism is countenanced, although Moses David evinces a powerful distaste for male homosexuality and, after some ambiguity on the subject, has effectively forbidden it among his followers.

Perhaps most extraordinary is the Family of Love's use of sexuality as a means of recruitment. Female followers especially were encouraged to "fish" for converts to Jesus and the movement (hence "flirty fishing" as the name for this enterprise) using sexual allure, and if necessary sexual intercourse, as a means of displaying their love and God's love for the potential convert.

"Flirty fishing" shortly also came to be seen as a means of raising income, when it was found that men could often be persuaded to part readily with "gifts for the work" in return for the "gifts of love" they had received. In due time even the pretence that they were not offering sex for money was largely dropped as the girls were encouraged to "make it pay", to secure jobs in escort agencies, or even to set themselves up as call-girls.

The Family of Love is not alone in using sex as an aid to recruitment, however, nor as a source of income. Sexual access was denied to contacts of Manson's Family who were not committing themselves sufficiently. The girls were offered as topless "go-go" dancers to an entrepreneur at one time, performed for pornographic movies and were willing to go street-walking to secure bail for one of their companions. Like so much else in Manson's group, however, these activities were probably less systematically developed than their analogues in the Family of Love.

The proclivity for sex and violence (although I would stress again that I know of no evidence for the use of violence in the Family of Love) are not, however, isolated features of these movements. Rather they represent the extremity of unconventional behaviour which characterizes them much more generally. Their histories display a curious volatility and eraticness in terms of the diversity of their innovations and the abruptness and unpredictability of their introduction.

Manson's group initially differed little from numerous vagabond tribes of communal, drug-taking hippies drifting around California and elsewhere in late 1960s America. They might never have received any significant attention but for their growing readiness to secure what they wanted by crime: direct theft and credit card forgery both being a frequent recourse. But the most important innovation appears to have been an apocalyptic vision of coming confusion, of black revolt and destruction of the whites: "Helter skelter". This is in turn promoted a growing paranoia, an expectation of black attack, which in turn generated an atmosphere of violence.

Mass suicide was the last of a series of major changes in the People's Temple. Jones had shifted its belief system away from a fairly conventional interpretation of the Christian message, to a more explicitly secular socialist radicalism, throwing down his Bible in one sermon to chastize the congregation for having their eyes too much upon it and not enough on him. He introduced the notion of an imminent nuclear holocaust, and shifted his following from Indiana to Ukiah in California, later to San Francisco and then to Guyana.

He introduced dramatic manifestations of his power through healing services in which "cancers" were removed, or followers were "struck dead" and raised again, and through mysteriously acquired knowledge of members' lives culled from dustbins and through other devices by his aides). Physical punishments were introduced; fear of renewed racist hostility was encouraged; and trial runs of the final suicide were undertaken, in which followers were asked to drink wine and then told that it was poisoned. These are among the major instances of erratic and unpredictable changes in belief and practice.

> **Physical punishments were introduced and trial runs of the final suicide were undertaken**

Synanon also exemplifies this pattern. Beginning as a breakaway group from Alcoholics Anonymous it admitted drug addicts, then excluded the alcoholics. Originally aspiring to rehabilitate the addicted and return them to society, it became committed to a conception of itself as an alternative society. Non-addicts were admitted, and then favoured over the addicts. The Synanon Game, a marathon encounter group, was elaborated into a plethora of forms from the ritualistic "trip", to the never-ending "stew" with its rotating membership.

Chuck Dederich, the movement's founder, in rapid succession required the abandonment of smoking and of white flour and sugar; the wearing of close-cropped hair by female members and of shaved heads by men; the performance of daily aerobics by all members; separation of children from parents; adoption of craft hobbies; "elegant dining" to take two hours an evening; the "cubic day and week" which involved long periods of work followed by long periods of rest and recreation; and encouraged the introduction of physical punishment for delinquent younger members. Dederich was a fount of innovations and experiments which appeared often to have only the most arbitrary relationship to the prevailing system of belief and practice.

The Children of God are a paradigm case of this pattern of arbitrary and unpredictable change. Founded in 1968 near Los Angeles, the movement originally seemed very similar to other Jesus People groups then emerging. Its followers lived communally and abandoned drugs and sex for a fundamentalistically informed life of evangelism and moral restraint. They saw themselves as a latter day tribe of Israel, modelling themselves to some extent on the kibbutz and planning to embark *en masse* to establish themselves in Israel and convert the Jews, thereby initiating the "last days" before Christ's return.

However, after a visit to Israel by the movement's leader and prophet Moses David Berg, who found it far too similar to America for his liking, the movement was to go through a succession of changes in belief and practice as a result of Moses David's revelations. Members were directed to leave America for Europe and later Asia, Africa, Latin America, subsequently sent off to new parts or back to their homelands, encouraged to settle and to adopt a mobile lifestyle camping or caravanning, in rapid succession.

They were warned to have nothing to do with other Christian groups, then encouraged to work with them; to separate themselves, then to join the churches; and so on in a bewildering fashion. Street witnessing gave way to literature distribution, which gave way in turn to "flirty fishing". Not working for the evil worldly "system" was superceded by encouragement to do so in order to support oneself or others in the field. "Spirit helpers" for the leader were introduced into his messages which also took on an increasingly explicit sexual character.

Effective leadership would be appointed and then cast down, only to be restored to power later. Structures of administration would be established only to be overturned. The organization of life was progressively transformed from large communes to small groups, often little more than nuclear families meeting each other only at intervals.

Having established that a pattern of arbitrary and unpredictable change appears in a number of new religious movements, the issue arises of how it can be accounted for. If these changes are arbitrary and unpredictable then it is, perhaps, perverse to regard them as possessing a pattern at all, since this precisely suggests non-arbitrariness and predictability. Moreover, the arbitrary and unpredictable seem – on the face of things – scarcely amenable to explanation as the expectable outcomes from some set of contingent characteristics.

The usual explanation, of course, is the madness of the leader. But the evidence for this is rarely based upon an adequate clinical examination. Moreover, such an explanation is less than altogether satisfactory – even in an apparently incontrovertible case such as that of Jim Jones toward the end – when part of the problem to be accounted for is why these particular "madmen" are able to lead other people to behave in such extraordinary ways. The solution to this is usually said to lie in the fact that the followers are "brainwashed" and that they are, therefore, willing to undertake any course of action, no matter how insane its advocate.

The "brainwashing" hypothesis, however, is one of the intellectually least compelling yet advanced to explain the behaviour of new religious believers. This is for reasons far too numerous to be elaborated here, beyond saying that the "victims" are volunteers; they are not incarcerated; many do leave at various points; the routine efficacy of any particular set of "brainwashing" practices has not been demonstrated even in coercive settings; anyway "brainwashing" never was anything more than a Cold War metaphor for conversion, attractive to those wishing to justify behaviour subsequently regretted.

However, I propose that when one shifts one's attention from trying to find a pattern in the changes taking place and in their overall direction, to seeing the pattern as lying in the very fact of arbitrary and unpredictable change, that the problem can be resolved. This is not to say that the particular changes introduced at any given point are not seen as important, nor that the direction in which they lead is not generally desired at that particular time by the leader concerned, but that change is also seen as vital regardless of its direction. Moreover, movements of this type have suffered the attenuation of those mechanisms which elsewhere constrain the fluctuation of, or at least the implementation of, the leader's passing whims.

What distinguishes the movements in question? They all display a character that I describe as world-rejecting. They all – from the first, or more progressively – distanced themselves sharply from the surrounding society, rejecting it as evil and corrupt, as doomed to decay and destruction, and saw themselves as islands of sanity or righteousness in a hostile and degenerate world. Even in their perverse fashion, Manson's Family saw themselves as living the ideal life compared to the "piggies" of the conventional world.

So great a break with the prevailing society can only be justified by the authority of someone perceived to be truly extraordinary. Thus such extremes of world rejection are normally founded or fostered by a charismatic leader. Weber's characterization of the charismatic leader is well known, applying the term to leaders whose authority rests upon the recognition in them by their followers of "supernatural, superhuman, or at least specifically exceptional powers or qualities . . . regarded as of divine origin or as exemplary . . ." Such authority is inevitably precarious, requiring continuing generation of belief in the extraordinary provenance of the leader's right to command, a belief only too liable to dissipate unless reinforced by signs of the miraculous.

But charismatic authority is not only precarious in terms of the liability of belief in its possession, but also in terms of the constant threat of institutionalization, the tendency for its transformation in a more rationalistic or traditionalistic direction. Charismn tends to give way to a less spontaneous and more predictable style of leadership and the emergence of a stable institutional structure which constrains not only the followers, but the leaders as well.

Typically charismatic leaders acquiesce to, or are displaced from leadership by the process, but a few forsee the threat to their own free and untrammelled authority and take steps to forestall it. The principal means of doing so is the introduction of unpredictable changes and demands. These may take various forms – frequent change of environment, removing ties to stable external sources of support; undermining stable ties between pairs and groups within the movement, for example by breaking down exclusive sexual ties between members; undermining relationships of authority (other than those directly with the charismatic leader) which might compete for the loyalty of followers; introduction of new beliefs and practices which provide an opportunity for followers to display their commitment, or lack of it, to whatever issues from the leader's mouth, rather than any particular message or ritual.

Such changes not only enhance the leader's authority by removing competition, they also remove those whose commitment is declining and who would therefore, like to settle into a quiet and predictable pattern of activity providing other benefits of lifestyle, status or income. The "half-hearted" can be provoked into declaring themselves by constantly imposing new demands leading either to protest and exclusion for disloyalty, or to defection. Such periodic disruptions of routine produce among members who survive the change a sense of liberation, of new freedom, a sense of excitement and thus often of renewed enthusiasm and zeal, and, most important, of enhanced commitment to the leader.

Thus, I suggest that the degree of change characteristic of movements such as those described above is attributable to the successful efforts of their leaders to prevent the emergence of institutional structures, or routines of thought and behaviour which would endanger or inhibit their charisma. But change is also thereby indirectly encouraged because by implementing such changes, the leader eliminates the sources of inhibition upon his translation of every new whim or inspiration into practice.

The process thus tends to become self-reinforcing, leading towards and opening up ever darker recesses of the leader's id, releasing ever deeper primal desires, as the constraints upon their indulgence are removed. Undermining institutional structures and patterns not only constitutes change and eliminates the constraints upon further change, it also creates ambiguities and conflicts of policy and practice which leave the members without clear guidelines to action. Only by constantly watching the leader, subordinating themselves totally to his inspiration of the moment and being willing to humble themselves for their failure to follow that inspiration closely enough, can they remain among the favoured. At that point, of course, obedience may lead into the abyss.

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The "throne" of Jim Jones, founder of the People's Temple, stands empty after he led 900 of his flock into cyanide suicide in the Guyanan jungle.

Why government should be governed

Geoffrey Finlayson argues that the price of freedom is eternal regulation

The year 1983 marks the one hundred and fiftieth anniversary of an event which, today, may seem of little significance: the Factory Act of 1833 and the first appointment of the factory inspectorate. Yet this seemingly obscure event was important, for it was the first occasion on which an attempt was made to enforce legislation curtailing hours worked in factories and, in a wider sense, it marked a stage in the growth of governmental regulation and professional bureaucracy in English social and economic life. Nor is this without relevance to the present day, for the issue of regulation and control within a society which prizes individual freedom and liberty are as pertinent to the Toryism of the 1980s as to the Whiggism of the 1830s.

Legislation regulating factory hours was not new in 1833. The first Factory Act was passed in 1802 and it was followed by several others. Although long working hours were by no means unknown in pre-industrial society, these acts – often inspired by humanitarian, paternalistic or evangelical concern – involved a recognition that the social consequences of industrialization could not go unchecked and that the more vulnerable sections of the workforce – in particular, children – required the protection of the legislature to guard against their exploitation by the more unscrupulous factory owners and rapacious parents.

But while the motives were laudable, the mechanics of the legislation to which they led suffered from severe limitations. It was one thing to put an act on the statute book but quite another to see that it was enforced. The absence of any system of registered births made age extremely difficult to establish and parents and employers – on whom enforcement procedures normally depended – had little motive to implement legislation from which they had little to gain and much to lose in terms of earnings and production.

This was, indeed, a point to which the Royal Commission, set up by the Whig government in 1833 to investigate the employment of children in factories drew particular attention. "Any measures by which the enforcement of the law shall be made chiefly dependent on those who have an interest in breaking it", ran their report, "may be expected to prove as inefficient as the provisions of the existing law". To eliminate dependence on easily forged baptismal certificates to establish age, the commissioners recommended that a complex system should be adopted whereby a doctor should issue a certificate – countersigned by a magistrate – to the effect that a child was "of the full growth and usual condition of a child of the age prescribed by the legislature and fitted for employment in a manufactory." The age was nine years.

A child could not be employed in a factory without this certificate; and to ensure that he or she did not work beyond the hours laid down by the commissioners – nine a day or 58 a week for children between nine and 13 – the commissioners further recommended that three inspectors be appointed by the government "to go circuits of the chief manufacturing districts, at intervals as short as may be practicable, and exercise the functions with which they may be invested for carrying the law into force." Here, then, was the germ of the factory inspectorate: unlike parents or employers, this was a disinterested and professional agency, with an interest only in enforcing the law.

The Act of 1833 somewhat widened the scope of the commissioners' recommendations. In addition to the protection of a nine hour day for children between nine and 13, it limited the hours of young persons between 13 and 18 to 12 a day or 69 a week. And, to enforce the act, it appointed four rather than three inspectors who were given powers of entry to mills or factories to which the act applied and wide powers of enforcement. A number of superintendents were also to be appointed to assist the inspectors, although they had considerably fewer powers.

Historians have differed in their interpretation of the forces which led to the Act of 1833. Some have argued that Benthamism was a vital ingredient and that the distinctive administrative devices derived from Edwin Chadwick, a prominent member of the commission, who in turn owed his ideas to Jeremy Bentham. Other historians have stressed other influences: the background of evangelical and paternalistic initiatives in factory legislation; the fact that inspectors and enforcing officers were not unknown in other fields; the point that an inspectorate was – as the commissioners themselves acknowledged – suggested by factory owners who, in the interests of fair competition, urged that implementation of legislation should not be left to individual conscience but should be enforced by compulsion.

This controversy extended beynnd the Factory Act of 1833 and embraced the whole growth of government and administratinn of the early and mid nineteenth century: what Oliver MacDonagh called the "nineteenth century revolution in government." Broadly, it divided intn those who stressed the primacy of Benthnmite principle in shnping the emerging administrative state and those – like MacDonagh, who stressed the primacy of pragmatism. It was a debate which tended to run into problems of definition and, as so often in historical controversies, was, on occasion, chnracterized by one school accusing the other of making points which the other promptly denied and disowned.

At the risk of oversimplification, it may be said that the report and Act of 1833 *did* owe much to Chadwick; but it was perhaps his distinctive ability to synthesize much existing thought and *practice* – not *all* of it deriving from Bentham – and to arrange it in an orderly and systematic fashion. This provided something close to a blueprint for the government of the day – although that government could, of course, alter it. Chadwick, indeed, occupies a prominent place among drafters of such blueprints of social policy who have displayed similar gifts of synthesis and organization.

Where historians agree is in their assessment of the importance of the Factory Act and Inspectorate in the growth of a professional bureaucracy. Not that the act worked well in its first years. There were to be problems over the method of certification as to the fitness of a child to work in a factory. The method adopted – following closely the recommandations of the commission – placed considerable reliance on doctors which, in the absence of a properly qualified and registered medical professinn, was in many cases misplaced. The counter signature of the magistrate – often applied to a number of certificates at one without any sight of the child – provided little extra guarantee or safeguard. Certificates were often sold or passed on and employers turned a blind eye to such irregularities. The act gave jurisdiction to bear complaints against infractions of the law to magistrates, concurrent to that given to inspectors. But magistrates were often employers and thus had an inducement to be lax in such matters.

Confronted with all these difficulties, the inspectors were faced with a very large task. Some had a huge area to cover and could make only very intermittent visits. Thus Robert Rickards, the Inspector appointed to the midlands, had an area which contained some 2,700 factories and 250,000 workers and he collapsed under tbo strain. Nevertheless, the very existence of the inspectors was o bulit-In guarantee that pressure would be exarted to close the loopholes in the act. Their statutory duty to report to the Home Secretary gnve them a regular opportunity to press for further amendment and more extensive powers and the inspectors – in particular Leonard Horner – acted as a powereful stimulus to growth in regulation and administration. An Oliver MacDonagh pointed out, administration begets further administration: a lesson with which the twentieth century has become familiar.

A view of children at work from *The Oracle of Health*, 1840. Right, a modern view of factory workers – hand fillelers at work on the production line at Birds Eye

What seems paradoxical in all this is the fnct that the legislative intervention and adniuistrative growth which the 1833 Act brought about took place at a time when the prevailing economic doctrine was one of non-intervention and *laissez-faire* and when administrative growth was regarded as undesirable, expensive and offering opportunities for patronage and corruption. This is, indeed, something of a paradox; one of which A. V. Dicey in his influential book *Law and Public Opinion* (1905) was aware. Dicey characterized the period 1825 to 1867 as one of individualism. Then the emphasis was on the dismantling of governmeatal controls; and yet the 1833 Act was, as Dicey recognized, an invasion of individual, and an assumption of governmental, responsibility. Later historians have also pointed to the contradiction and have used it to show the inconsistencies in Dicey's arguments – and even to argue that there was never such a thing as a period of *laissez-faire* in nineteenth century Britain.

Dicey was, however, entirely correct in pointing to the Individualistic and *laissez-faire* ethos of the time; more correct than some of his later critics have been. The Royal Commission of 1833 was in essence an attempt to head off what would have been a much more substantial invasion of *laissez-faire* principles in the shape of a Ten Hour Bill introduced in 1833 – within the paternalistic tradition – by Lord Ashley, then at the beginning of a longar career in factory reform. The commission was an exercise in calculation rather than conscience; it was designed to give the Whig government an alternative – within the confines of *laissez-faire* – to Ashley's bill which, if passed, would have introduced a 10 hour day for all under the age of 18; and this restriction would have had the effect of limiting the hours worked by the ndult workforce.

The commission's report went out of its way to condemn the Ten Hour Dny: it was, it said, objectionable in principle, since it would involve an interference in the labour contrnct between master and man; it was objectionable in practice, since it would limit production and play into the hands of Britain's competitors, unfettered by regulation. The only section of the workforce which the commission thought it proper to regulate was children; such children were "not free agents" but were "let out to hire" and thus "n case was made out" for the intervention of the legislature on their behalf. This would protect them from the affects of overwork, which were spelled out in clinical and utilitarian terms: fatigue, disease, lack of opportunities for education and self-improvement – which the Commissioners sought to remedy by their recommendation that a part of the time abridged from labour should be spent in education. Further the commissioners kept the enforcement agency within strict limits. They realized that an extensive and numerous inspectorate would be more effective and efficient, but rejected this on grounds of excessive bureaucracy and expense: thus, as the report put it, "a comparatively small agency would suffice". It is true that the act extended the scope of the reform but it did not do so significantly. It was a great disappointment to the Ten Hours Movement, which, moreover, was quick to point out its ineffectiveness after 1833.

The Factory Commisson and Act of 1833 thus argued within *laissez-faire* terms – that those who could, in theory, look after themselves should do so. The same point might be made with even greater force about the recommendations of the *next* great commission of the 1830s, that on the Poor Law, which reported in 1834. With its insistence that poor relief should only be given in well regulated workhouses and on terms which were less eligible than those offered by the lowest form of independent employment, the Poor Law report positively encouraged those who could look after themselves to do so and sought to clear the ground for the exercise of private charitable effort. The reports of the two commissions – on factories and poor laws – were shot through with *laissez-faire* and self-help assumptions and, far from being early manifestations of Welfare State ideas, were representative of the individualistic, liberal, market-oriented ideology which was takitg a firmer hold on official social policy in the 1830s.

And yet, in both cases, the state set up new agencies to create the conditions in which *laissez-faire* could flourish: the Factory Inspectornte of 1833 and the Poor Law Commission of 1834. Even within the context of *laissez-faire* assumptions – which Dicey correctly observed – regulation actually grew, a feature which Dicey also recognized but found difficulty in fitting into his general interpretation of a society freeing itself from governmental restrictions. And it is here that present-day developments are illuminating. It is a truism that the present government is more committed to market forces and self-help ideals than any in recent memory. Dorothy Wedderburn in an article in *The Listener* (November 4 1982) reviewing a talk by John Biffen, addressed herself to the points which Biffen had made about "the balance between the rôle of the state and the scope for private initiative". This, he had said, was the "crucial balance in modern industrial society" and while he had not sought to tilt the balance overwhelmingly to the side of private initiative, he had indicated the dangers, as he saw them, of the balance being struck on the side of the state. Dorothy Wedderburn commented that "someone of (Biffen's) political persuasion had to confront the paradox that, with his policies, government had to be used to reduce government."

In the case of the Factory Act, the Whigs used government to prevent *more* government in the shape of a 10 hour day. In the interests of ensuring fair and free competition within a market economy, they introduced the factory Inspectorate. Yet this was a body which, in time, was to be an ever more effective regulatory and controlling agent. fn the Poor Law of 1834, the Whigs used government to cut public expenditure on poor relief; yet the Poor Law Commission, if negative in its objectives, was – in various guises – to play a rôle which was one of "*dirigisme*".

By tradition, the Whigs were upholders of freedom and individual liberty in political matters; and in economic and social matters they were, on the whole, free of the paternalist strain which ran through some sections of the Tory Party. Yet to safeguard and promote freedom and individual liberty, they found it necessary to set up agencies which were, in practice, to control it. The problem was, in essence, an old one: freedom which is not licence requires regulation; yet regulation threatens freedom. Thus, as one historian has put it, state intervention in the mid-nineteenth century was not explicitly for the purposes of moulding the contours of the socialist commonwealth. Although Marx was tolerably clear in his own mind as to what full communist society, and that the former was a necessary precursor of the latter (see the *Gotha Programme*), he, nevertheless, gave us little more to work on than those famous aphorisms concerning distributions according to dessert and to need. But this is not

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BOOKS

Central planning and the market

by Peter Abell

The Political Economy of Socialism: a Marxist social theory
by Branko Horvat
Martin Robertson, £25.00
ISBN 085520 477 X
The Economics of Feasible Socialism
by Alec Nove
Allen & Unwin, £12.95 and £5.95
ISBN 004 335048 8 and 335049 6

Nineteen-eighty-three, the centenary of Karl Marx's death, is perhaps a propitious time to assess the relevance of his ideas for the prospects of socialism in our own time. It would, however, be remarkable if a body of ideas so laboriously fnshioned in the mid-decades of the nineteenth century and owing much to the philosophical legacy of both the Enlightenment and the Romantic rnction were to speak, in any significant detail, to our own time. Nevertheless, many appear willing to entertain Marxian doctrine and it does, of course, hold sway of some sort over the minds and actions of many millions.

Alec Nove directly addresses the issue of Marx's contemporary relevance; by "feasible socinlism" he means a "state of affairs which could exist in some major part of the developed world within the lifetime of a child already conceived without our having to make or accept implnusible or far-fetched assunptions about society, human beings and the economy". Branko Horvat, unlike Nove, offers us an avowedly Marxist analysis, the culmination of many years engagement, both ocademically and practically, with the problems of the Yugoslavian economy. Indeed, he opens by stating that his book representa a life's work; it is certainly written on the monumental scale and aims to provide a comprehensive blueprint for a socialist, self-governed democratic state.

Although both books cover much the same ground the difference in style and tone is quite striking; Nove always hesitant, cautiously tentative and only occasionally lightly ironic but always amusing, ultimately advocates n mixed economy comprising state-owned and controlled enterprises, self-managed state (or socially owned) enterprises, cooperatives and small-scnle private enterprises. Horvat, on the other hand, Olympian, frequently heavily ironic and assertive, is impatiently dismissive of opposing views and entirely convinced that mankind's salvntion is to be sought with an economy where the productive assets are "socialized" and enterprises are self-managed. His prescriptions, in fact, to a large degree pnrallel the economic, though not political, institutions at present operating in Yugoslavia. Both authors, however, seek a role (optimal not exclusive) for markets in determining the volume of and price at which goods should exchange and will thus attract the wrath of those Marxists who interpret the masters' writ as providing the provenance for a centrally planned economy where the undisciplined anarchy of the market will be displaced by "planning for need".

It is notorious that Marx himself – unlike the utopian socialists of whom he was so scathingly critical – was rather reluctant to provide anything like a blueprint for the socialist, let alone the full communist society. Those Marxists, therefore, for whom the problem is to construct a picture of these societies, faithful to Marx's intentions, find themselves searching for fragmentary evidence in a complex body of thought which fell frou his pen over several decades. This fragmentary legacy is often contradictory and inconclusive and, as Nove argues, entirely inadequate for the purposes of moulding the contours of the socialist commonwealth. Although Marx was tolerably clear in his own mind as to what full communist society, and that the former was a necessary precursor of the latter (see the *Gotha Programme*), he, nevertheless, gave us little more to work on than those famous aphorisms concerning distributions according to dessert and to need. But this is not enough; and, nll those who have had to tussle with the problems of "socialist construction", have found this to be so.

Unfortunately, however, the empty spaces which lie between and beyond Marx's own conceptions of the just society have been papered over with high-sounding rhetoric – a rhetoric which, when in the hands of those in power and their intellectual lackeys, has had consequences which, to Marx himself, would have proved anathema. The rhetoric, nevertheless, derives from Marx's highest ideals, his heartfelt belief that technological development was (even when he was writing) well on the way to solving the "problem of production", if only the shackles imposed upon the forces of production by capitalism, could be removed. In the ensuing period of approaching abundance and selflessly motivated men the problems of economic allocation, the concentration of political and bureaucratic power (which after all are generated by inequal access to scarce economic resources)), the calculation of opportunity costs and the provision of incentives would all hegin to evaporate. Humnn beings would increasingly be able to see *ex ante* what needs to be produced and the correct way of producing it; exchange relations (ie markets) can then be replaced by conscious planning, snnisfying naeds through the provision of "use-values". Indeed, many like Bukharin, echoing Marx's suggestion that the social sciences are only required where the *true* nature of social relations are masked by ideologically tainted conceptions, have argued that there cannot be a political economy of socialism. Nove argues that a distinctive weakness of Marxist theory rests with its tendency to assume away many of the problems of socialist economic, political and social organization under the imprint of argumentation of this sort.

While both Horvat and Nove are far from hostile to the high ideals of the selfless post-scarcity communist society they are entirely sceptical about its likelihood in the foreseeable future and, what is more important, are not willing to buttress their arguments for socialism with conceptions which depend upon it. After all, Horvat's book is an essay in the political economy of socialism, not communism and Nove, as we have seen, has an eminently pragmatic definition of feasibility.

But this still leaves the problem of value under planned socialism. Can the labour theory of value provide central planners with an instrument for determining prices? Nove is sure it cannot – "Marx had little that was relevant to say about computation of costs under socialism (and implied that under full communism costs would not matter anyhow). Marxists who have tried to adopt his (labour) theory of value tend wrongly to use valuations in terms of (direct) labour costs alone, which so far as efficient resource allocation is concerned is plainly inadequate as it ignores scarcity of production factors other than labour and neglects use value." This is, of course, well trodden but controversial ground; Nove's argument is that even if (labour) costs could be computed, a complex modern economy cannot be planned centrally in an efficient manner. He persuasively rehearses the arguments which he and others have made elsewhere against the desirability of state command economies. Nove is o prominent Sovietologist and student of the East European economics and his detailed annlyses of their experiences and even those of the reform models in Hungnry, Yugoslavia, Poland and China, enable him to mount a convincing case against a sole reliance upon central planning in resource allocation. Here he finds much common ground with a number of socialist thinkers who advocate "socialist markets" (Lange, Brus, Sik).

Reconstructing the city of Skopke, Yugoslavia at the Institute of Urban Planning after the earthquoke.

Horvat reaches similar conclusions but by a rather more circuitous route. He promotes a model of self-governing socialism not solely on the basis of a critique of Soviet command economies (which he calls "etatism") and capitalism but in a positive way as a society embodying the precepts of socialist justice as he sees them. Horvat is equally critical about the "class structure" of both capitalist and étatist societies in each of which, he argues, a ruling stratum expropriates the "surplus value" of labour. Thus both are exploitative and will, according to further Marxian precepts, be replaced by genuine socialist societies. And, needless to say, these will be of a Horvatian (genuine Marxian?) self-governed variety. It takes Horvat five hundred pages of text and one hundred and forty pages of notes to dismiss capitalism and étatism and to describe the historical roots, philosophical underpinnings and the problems of transition to self-governing socialism, which give some idea of the complexity and richness of the author's undertaking. Indeed if the content of Horvat's book fails to satisfy many orthodox Marxists its length and weight certainly should not; not quite a *Das Kapital* but not far off. For those, however, who already feel timorous let me hasten to add that they will not encounter in Horvat's pages the infuriatingly opaque prose of much neo-Marxinn writing.

So what are the precepts of (Horvatian) self-governing socialism? What principles of justice *should* social and economic organizations institutionalize in a democratic socialist society? True to the spirit of the Marxian dialectic, which would both preserve and extend the progressive content of bourgeois thought Horvat, having summarily disposed of Rnwls reverts to *liberté, egalité et fraternité*. He believes that these "three components of justice" are interrelated in a rather simple but convenient way; first maximum freedom and equality imply each other (thus if someone is less privileged then they are less free, and vice versa). Second, freedom and equality "moke solidarity necessary". Conveniently then we face no dilemma, there is no question of setting one against the other, all dimensions of justice move together either in the right or wrong direction. I doubt this (one paragraph) would withstand close logical scrutiny.

But, he this as it may, we are permitted to select one dimension only in deriving our principle of socialist justice as the others will necessarily fall into line. Thus *Omnes homines iure naturali aequales sunt* which becomes "members of society must enjoy equal freedom to lead life according to their own choices". Equality then is equated not with equality of outcome (or income) but with "socially equal life chances". Socialist society is, thus, first *and foremost an* "achievement society" but one where social promotion is such that one's social origins have no detectable influence on one's eventual social position. Horvat continues by discriminating the fundamental rolea which every citizen must occupy (fundamental rolea are those which cannot be abandoned unless a person leaves the society). There are, he argues, three such roles, first as a producer, second as a consumer and third as a citizen, each of which must be subject to the principle of equality.

Equality of producers amounts to equal access for all to the productive capital of society – what Horvat terms social ownership. Self-managed producers' collectives are to be given the leasehold (*usufruct*) of productive capital which, while maintaining its value, they may use to their best advantage. The self-managed collectives are, however, not merely to operate in a competitive product market but are to *ex ante* voluntarily to coordinate their activities through a process of social planning. Social planning is to be sharply contrasted with central planning where coordination is imperative, undermining the autonomy of the collective. Social planning, it is ventured, will prevent the colleetives from becoming the victims of the "haphazard forces of an uncontrolled market". Horvat believes that bourgeois economist and vulgar Marxist alike find common ground in representing planning and markets as two incompatible forms of organization. But social planning and the market are complementary; the former is to iron out the market imperfections (false perception, technological and other externalities, market fluctuatiuns, and so on) and has three basic functions: forecasting, transcollective coordination of economic decisions and the guidance of economic development. Since it is voluntarily arrived at by participant collectives the plan is *obligatory* for the colleetives which adopted it. If n collective operating with the best information available does not see it as in its intereats to collaborate then presumably it is free to go its own way.

Equality of consumers implies a "just" distribution of income. This does not however, mean "mechanicnl equality" but rather that each should receive ns much as he/she contributes to the social output. Since Horvat allows (licensed by the concept of social property) an appropriate (collective) return to capital it appears that this principle is, in practice, almost identical to the neo-classical one which would promote returns in proportion to marginal products. This is not quite clear, however, since capital being socially provided can presumably be rewarded at o rate which does not necessarily reflect its scarcity-value ("contribution"). Vulgar(?) Marxists will cnvil at nll this; for after all unless one equalizes the conditions of production then, as Roemer has recently shown, it is possible – in a Marxist sense of the term – for one collective indirectly to exploit another. This aside, Horvat modifies the principle of distribution according to contribution to one according to *need* (Marx's full communism) for "education, the preservation of health and access to cultural activities". This he believes effectively guarantees equality of opportunity.

Equality of citizens (which can only be guaranteed when the first two equalities have been satisfied) implies an "equal distribution of power and meaningful participation in political decision making" while protecting the rights of minorities. This turns out to be pretty much like liberal-democracy with a much greater access to information.

From a purely economic standpoint Horvat advocates n sole reliance upon what for Nove is nnly one of a vnriety of econmic organizntions. Nove would, I suspect, be rather suspicious of Horvat's concept of social planning, feeling that the *ex ante* informatinn, even for voluntary collaboration, would rarely be available. But Horvat seeks no compulsion – presumably social planning would only emerge to the degree that autonomous enterprises find it in their self-interest to use it. What Horvat seems to underestimate though is the drive for enterprises to collaborate in fixing monopoly prices. This tendency could in practice only be defeated by either reinforcing a genuine market or by some central institution with the requisite powers. So we are back to square one.

ft is also arguable that Horvat's model of self-governing socialism is not the only one which is logically compatible with his basic precepts. By arbitrarily excluding the role of "investor" (for after all we are dealing with a money economy) from his list of "fundamental roles" he is able to advocate uncritically a collectivized model of investment. But the phrase "socialized capital" could, it seems to me, be equally well interpreted, as implying "equality of access" to non-voting equity. Imagine, if you may, an economic system where non-voting equity (itself the only sort allowed legally) is equally distributed in the population and self-managed enterprises compete in a fully decentralized market for such funds. I do not find this incompatible with Horvat's philosophical precepts. Of course such a market may be "haphazard" but then why not some social planning of this market also? It appears that Horvat the radical Marxist is not as radical as he might be!

So what do these two intriguing books tell us about socialism and the relevance of Marxism in our own time? Much, in my own view. Both lead us to reassess realistically the role which markets may be permitted to play in a democratic socialist state. The socialist movement in Britain despite its supposed greater reliance on Methodism rather than Marxism) has been dominated by the view that the socialization of capital (clause four and all that) implies nationalization. The argument for socialization is two-fold; first that it is more distributively just and, second, that it is more efficient in planning "for need". We cnn now begin to see nationalization may satisfy neither objective. Moreover, distributive justice can be addressed independently of the efficacy or otherwise of markets. Plan cum market is a technical issue of economic efficiency, the issue of distributive justice (income and wealth) can be addressed in other ways.

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BOOKS

Sociology under attack

The Sociological Domain: The Durkheimians and the founding of French sociology
edited by Philippe Besnard
Cambridge University Press, £24.00
ISBN 0 521 23876 5
Pragmatism and Sociology
by Emile Durkheim
translated by J. C. Whitehouse and edited by John B. Allcock
Cambridge University Press, £17.50
ISBN 0 521 24686 5

Who now remembers Monsieur Léon Bérard? And who will remember Sir Keith Joseph sixty years hence? The questions are prompted after reading an account of the efforts of Monsieur Bérard to use his position as French Minister of Public Instruction in 1923 for the purposes of attacking sociology, casting doubt on its scientific status, and attempting to undermine its position in the training programme of future teachers.

It is probably reassuring that not many people did remember Monsieur Bérard until Roger Geiger published his article on "Durkheimian sociology under attack: the controversy over sociology in the Ecoles Normales Primaires", with supporting documents on the "Lapie affair", in the volume edited by Philippe Besnard. However, like many of the other contributions to this book, the article provides a timely reminder of the struggles that have accompanied the birth and growth of the social sciences as academic disciplines.

The episode in question is the conservative backlash against the successful expansion of French sociology under the Third Republic. (The equivalent period for British sociology was from the late 1950s to the end of the 1970s.) One of the great achievements of Emile Durkheim and his team of collaborators who created the "French school of sociology", was to have got sociology accepted as part of the training of future schoolteachers. Bérard's motives for wanting to remove sociology from that programme are described by Geiger as including "a deeply felt animosity toward Durkheimian sociology" and "a condescending distaste for the intellectual pretensions that the programme seemed to imply". Furthermore, the teachers were among the most vocal opponents of the policies of the governing majority, and so the attempt to remove sociology from the programme, along with the senior civil servant in charge of it (Paul Lapie), was an "unmistakable and ominous act of political vindictiveness".

Bérard failed because he was resolutely opposed by the teachers and their representatives, who saw this politically motivated campaign as a threat to the "entire scholarly work of the Third Republic", apart from the fact that both they and their students liked the sociology course and reported it to be a great success. The Prime Minister, Poincaré, did not back him because there was an election in the near future and he did not want to provoke a confrontation with the nation's teachers.

One of the advantages to be gained from examining these historically distant events is that we can afford to consider the arguments and misunderstandings on both sides, whereas for the sociologists involved there was little choice but to rally to the flag in the face of hostile attack. To the politician, Bérard, accustomed to seeing social theories in crude ideological terms, there was no difference between sociology and Marxism: sociology was a "materialistic and naturalistic ideology destined to multiply the propulsive and explosive force of Marxist materialism" and it would make the teacher "a natural auxiliary of the communist revolution". This was news to some of the Durkheimians, one of whom, Bouglé, responded that through studying sociology the pupil "is warned and virtually immunized against the materialist conception of the world".

A more discriminating criticism of the sociology course was put forward by Henri Bergson, who maintained that it failed to distinguish between problems which related to sociological science and those which were philosophical. That in itself was not a problem for students who had done a year of philosophy, said Bergson: "they have witnessed, for an entire year, the conflict of systems, they know what a philosophical theory is; even if they accept one of them, they will not make a dogma of it." The problem arose for those students who had received no training in philosophy (and this is still the real weakness in the preparation of students who are admitted to sociology courses in Britain).

What emerges from this interesting collection of articles and documents from the Groupe d'Etudes Durkheimiennes, is that these early sociologists were not as united around their leader as they have sometimes been portrayed. Internally, the group contained a variety of competing views and, among themselves, as Geiger points out, "they understood better than anyone the relative immaturity of their science". They were mostly *agrégés* in philosophy and could see some truth in Bergson's argument. But Bergsonianism was exploited by fractions of the anti-republican Right, just as Durkheimian positivist sociology was exploited by the republican establishment. To some extent, the Durkheimians were involuntary partisans in the controversy, but with sociology under constant attack from the right, an absence of support on their part could undermine its defence.

They were also in a vulnerable position within higher education because their struggle to claim a legitimate place for sociology led to accusations of sociological imperialism from neighbouring disciplines. These struggles are instructively described by Victor Karady, and with regard to specific subjects by Weisz (on social economy), Isambert (folklore), Vogt (law), Favre (politics), Cherkaoui (education and social mobility studies). Some of the differences within the Durkheimian group are brought out in studies of individual members: Vogt on Bouglé, Besnard on Simiand, and Craig on Halbwachs.

Another contribution to deepening understanding of Durkheimian sociology has come from those British scholars who have recently produced new translations of some of Durkheim's works. John B. Allcock and J. C. Whitehouse deserve credit for making available the first full English translation of the course of lectures on pragmatism, which Durkheim gave in the academic year 1913–1914. Pragmatism has provided one of the principal philosophical underpinnings of American sociology. However, as these lectures make clear, Durkheim regarded it as inimical to sociology, and his view has influenced the development of the discipline in Europe. An appreciation of this epistemological difference can help to clarify why sociology often looks so different in Europe and America. Whether it would have helped to clarify the perception of Monsieur Bérard in the rue de Grenelle, or of Sir Keith Joseph in Queen Elizabeth House, is another matter.

Kenneth Thompson

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French peasantry

The Land of France 1815–1914
by Hugh D. Clout
Allen & Unwin, £12.95
ISBN 0 04 911003 9
The Imperfect Peasant Economy: the Loire Country 1800–1914
by Gregor Dallas
Cambridge University Press, £25.00
ISBN 0 521 24060 3

These two books offer intriguing comparisons. One deals with France, the other with just two regions; one uses aggregate data by *départements*, the other similar data at an individual or property holding level; one represents the approach of an historical geographer, the other of a social historian; one analyses the increasing commercialization of a peasant economy, the other emphasizes its durability and resilience to market-based forces of change.

Hugh Clout's study aims for a dynamic approach using land use data by departments for a succession of dates. While agreeing that agricultural change was slower in France than Britain and accepting the constraint of peasant attitudes, Clout demonstrates that France nevertheless experienced substantial changes during the century. Mountains of data are assembled from agricultural censuses and especially the early nineteenth-century cadastre and its 1851, 1879 and 1907 revisions.

Initially, he reconstructs land use and agricultural activity for the early nineteenth century and then concentrates on the major forces that promoted changes. The analysis is structured around the evidence of the cadastre with inferred changes within and between each land use realm being examined in turn, supplemented by details of arable crops, agricultural improvements, livestock husbandry and other practices. Clout recognizes the danger of an over-reliance on static cross sections: processes were probably more complex than revealed by available evidence.

Pithy chapter and section headings mask a wealth of detail, cartographic and verbal. "Underlying forces" include population pressure as a stimulus for raising agricultural productivity, but the prevalence of smallholdings and their parcellation are constraints. Similarly, improved accessibility, especially the railways, increased living standards; and urban demand and competition from North American wheat also promoted change. Successive "land use realms" of wasteland, arable, cereal crops, the livestock sector, viticulture and forestry are cartographically dissected. Yet within each realm Clout keeps in mind the balance of conflicting land uses. Many others would have subsided under the weight of data, their judgment and vision blurred by the complex patterns on hundreds of maps. A final synthesis offers a typology which identifies the leading land use category to gain or lose importance in each department during successive cadastral phases. Regional patterns emerge but can a hectare of wasteland equal one of vineyards in this evaluation? Economic weighting would perhaps help to explain the fascinating picture.

Gregor Dallas's study considers the survival of the peasant household economy in the Nantais and Orléanais regions, the author seeking evidence of continuity rather than change. An initial explanation derives from the essential peasant background, with Chayanov's model from Russia being effectively borrowed. Optimum agricultural intensification relates to internal family needs, the balance between family labour force availability and consumption needs, rather than to market forces. Submarginal labour inputs will occur and change will not stem from the urban market, but from rural demographic forces.

The second part of the book looks at exchange and the problems of social structure. Links between urban and rural communities are sought together with their social channels. The third part studies peasant society from the angle of time, and examines problems of the agricultural crisis. To discuss such generalized themes extremely detailed data are used including household-level census documents and individual holdings from the cadastre, all statistically manipulated, not always to much effect. Though valid thesis material, should this rather indeterminate quantitative section have been retained? Regional contrasts emerge between Nantais and Orléanais, usually to the former's advantage.

Although the material assembled by Dallas is impressive there are some surprising omissions and statements. To say that "very few studies of the cadastre have been published" ignores the work of Perpillou, Clout, and Baker. Similarly, the author overlooks the state subsidization of marl along the Orléans-Vierzon railway during the period 1853–73. Samples of 1 in 80 and of 50 properties in each commune are surely doubtful. Particularly unconvincing was the use of violence to indicate "intensification".

Finally, some intriguing contrasts and conflicts emerged. Dallas claims an early period of intensification followed by what he terms "extension". Clout sees a quickening transition from subsistence to commercial farming, from polyculture to specialization. Dallas's anxiety to elaborate his peasant model neglects the larger landowners practising commercial agriculture. Clout overlooks how a peasant society in crisis can produce intensification for internal reasons quite unrelated to market forces. Intriguingly, the geographer takes a chronological approach within chapters while the historian kaleidoscopes several decades of dynamic processes. But then a peasant economy is not supposed to be dynamic!

Keith Sutton

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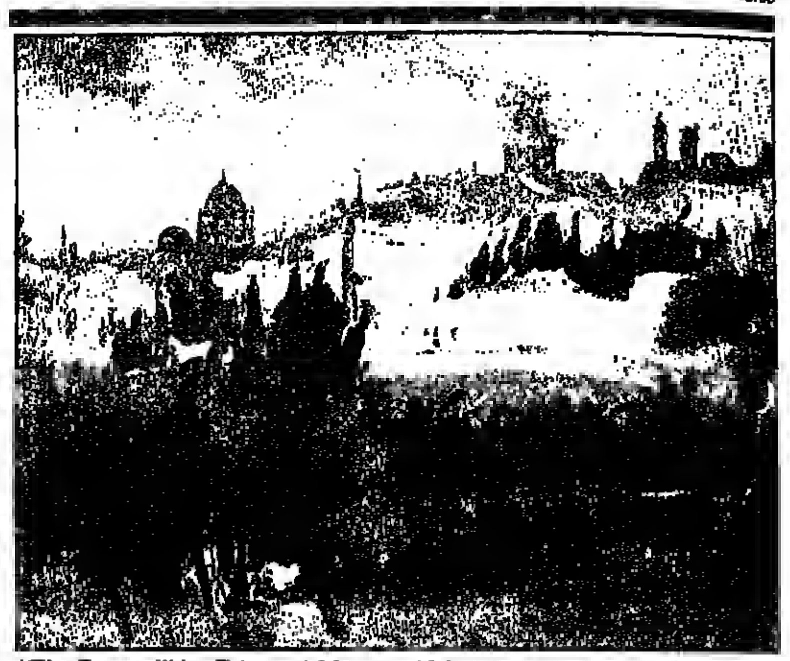

"The Funeral" by Edouard Manet c 1867, one of 100 plates from *Manet and Modern Paris* by Theodore Reff, published by The University of Chicago Press at £31.95.

Mining conditions

On Family, Work and Social Change
by Frédéric Le Play
edited with an introduction by Catherine Bodard Silver
University of Chicago Press, £24.00
ISBN 0 226 47266 3

This study of the nineteenth-century French social scientist Frédéric Le Play is one of the more original and illuminating recent volumes in Morris Janowitz's valuable "Heritage of Sociology" series. It includes a scholarly 133-page introduction by the editor, 23 translations of extracts from Le Play's writings, and a comprehensive bibliography. Catherine Silver has done much to rescue Le Play's reputation among sociologists from the obscurity in which it has rested for much of the present century.

Who was Le Play and what was his importance for the history of sociology? The history of empirical social research has generally received less attention than the history of social thought, and this partially accounts for Le Play's neglect. Le Play (1806–82) was an industrial and mining engineer by profession trained also in geology and chemistry. He became interested in social conditions, and sought to apply to the study of society the empirical and inductive methods used by the natural sciences. This was in contrast with the speculative and deductive methods of Comteian positivism popular in mid nineteenth-century France.

Le Play's teaching post at the Ecole des Mines gave him time to pursue research and to travel extensively studying mining conditions in different parts of Europe. In the course of these visits, Le Play used a form of what would today be called interviewing and participant observation to gather data at first hand on family structure and work relationships in different types of society. Le Play's great work, *Les Ouvriers européens*, published in 1855, consisted of 36 family monographs, detailed case studies of individual families as various as British industrial workers, Spanish peasants, a Swiss clock-maker and a Parisian rag-packer. In each monograph, Le Play provided contextual information on local economic conditions, voluntary associations, historical traditions, industrial relations and ecology. Later he developed typologies of workers and of societies, which he used in constructing theories of social mobility and social change.

Le Play was a Catholic traditionalist who favoured social stability, but he also believed firmly in the value of an applied "science of society" based upon empirical methods. His eclipse was partly the result of a caesura in his career in 1856, when he was appointed to the Conseil d'Etat. From then until his death he did little further empirical research and concentrated on proposing social reforms of various kinds. Le Play never hid the connexion between his scientific research and his moral beliefs. In the period 1829 to 1855 he did much to develop an empirical science of society, but in the latter period of his life the prescriptive concerns become totally dominant, swamping the social insights he had earlier shown himself capable of developing. It is hardly surprising that his influence was eclipsed by Comteian positivism. Nevertheless, Le Play should be placed alongside Saint Simon and Comte as one of the founders of French sociology.

Some of Le Play's followers espoused social reform, others social science. The latter group never successfully institutionalized his version of sociology in French universities, in sharp contrast to the Durkheimian school a generation or more later. They lacked influence at the centre, the Sorbonne. Their reliance on private enterprise distanced them from French academic culture. Many of them were businessmen or civil servants, with latent tendencies to anti-intellectualism which alienated them from the universities. Their defence of vested interests, and their religious stance, led to their being regarded as unscientific.

Paradoxically, Le Play struck a responsive chord in this country through those two curious early twentieth-century British sociologists Patrick Geddes and Victor Branford, founders of the *Sociological Review*, the Sociological Society, and Le Play House. Their version of "work-place-folk" and their advocacy of regional surveys drew on Le Play's geographical determinism. Though Geddes and Branford had a negligible impact upon subsequent British sociology, and indeed retarded its establishment, they had a considerable impact upon early sociological thinking among town planners, which can be traced even to the present. Such are the circuitous paths of intellectual diffusion.

Martin Bulmer

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A Dictionary of Social Science Methods by Patrick McC. Miller and Michael J. Wilson is published by Academic Press at £18.35 and £7.50. It defines and explains over 1000 terms associated with methods of inquiry in the social sciences.

INFORMATION TECHNOLOGY

Teachers put IT to good use

We are now six months into 1983, six months beyond Information Technology (IT) Year, in which the Government encouraged everyone to know about IT and exploit it. What about IT in British higher education? Are academics aware of IT and do they exploit it? What impact has it had, in particular, on teaching approaches?

It isn't easy to determine IT's impact because there is no concise definition of IT, but if we accept that it is the confluence of computing, microelectronics and telecommunications, we can find ample evidence that IT is already important, and that its importance is growing, in our higher education system. In fact, long before Information Technology Year universities were using computers and telecommunications to aid their administration, teaching and research. Miniaturization through the microelectronics revolution has enhanced and accelerated their dependence on what is now labelled IT.

In the past few months, anyone reading *The THES* will have noticed many signs that IT is becoming a field of teaching and research in its own right. New IT lectureships and research fellowships are being advertised and filled, in universities and polytechnics, at a time when older disciplines are losing large numbers of staff. The Council for National Academic Awards has advised all institutions beneath its umbrella to consider the significance of IT for the content of their present and future courses. Universities have a role at the cutting edge of the 10-year programme of IT research and development proposed by the Alvey report and already being implemented through the Science and Engineering Research Council.

There are also signs of vigorous activity in using IT *for* teaching. A recent national symposium on computer-assisted learning at the University of Bristol was over-subscribed. Among the papers being read were a dozen or so dealing with higher education. The symposium reflected growing interest among academics, which parallels developments in primary and secondary schools. The pages of journals such as the *British Journal of Educational Technology* and *Instructional Science* carry articles describing and evaluating applications of IT in higher education, while *CALNews*, edited at Imperial College and published by the Council for Educational Technology, keeps academics in touch with latest work, which is proceeding in one or more departments in almost every higher education institution.

In other words, higher education, despite massive budget cuts, is quite rapidly increasing its investment in IT. All universities and polytechnics are buying and leasing equipment; and all of them are commiting staff to IT, because they see this as being in their own interest, as a way of increasing the power and efficiency of their "knowledge machines".

On the face of it, IT should be very valuable to teachers. It can be used to create, store, select, convey, transform and display information. Since knowledge is imparted as information, surely IT is just what teachers need, and, since all those seeking knowledge can use IT to acquire it, students surely need IT too? In higher education, where knowledge taught and learnt is complex, extensive and expanding rapidly, IT should be even more valuable than in primary and secondary education. IT gives quick access to the latest information. It enables teachers to adapt and update their teaching and learners to interact in sophisticated ways with various kinds of data.

In fact, most IT systems and devices could be used for education. They consist of hardware (everything you can touch), software containing the rules and commands the hardware must obey, written in a programming language, and, for education, courseware or teaching material. Of course they can handle numbers, but they can also deal with words (spoken and written), still and moving pictures, computer graphics, charts and music. Input and output can be in many modes. This means that when these systems and devices are used for teaching, the "lessons" can take many forms.

What is the IT hardware? This includes input devices, storage media and devices, processors, transmission devices and systems, output devices, and integrating systems. For input, microphones, keyboards and keypads are now supplemented by touch-sensitive boards and screens, graphics tablets, video cameras, optical character recognition devices, and, still in their infancy, voice recognition systems. For storage, paper and gramophone records are being displaced by magnetic tapes and discs, optical videodiscs and "chip" memories, and by microform (microfilm and microfiche) produced by computer. For processing, computers of many sizes and capacities are available, ranging from large "mainframe" installations to microcomputers and even pocket calculators. Transmission is via broadcasting and microwave frequencies, or along wires, or through light-carrying fibres. The first may involve satellites; the second and third may require cable networks, local or regional. At the output end, new electronic devices often include a visual display and printers that convert symbols or pictures on the screen into "hard copy" on paper. Other devices emit sounds, including spoken words, or provide tactile displays such as Braille.

Integrating systems are of vital importance: at the microscopic level of the chip, more integration is the aim of manufacturers, who will thus lower costs while increasing product reliability and capability. At the macroscopic level, electronic networks, linked to computerized databases, integrate many IT functions. Prestel is a well-known example, based on telephone lines; Ceefax and Oracle are broadcast. All three could be transferred to cable. All could be used for higher education.

Preparing the software for these devices and systems for particular purposes is neither straightforward nor cheap. It requires a very thorough systems analysis of what they should do and of how they can be made to do it. Then programs must be written and tested, commanding the equipment to receive, store, process, select, transmit and display information.

For teachers in higher education, the biggest problems frequently occur when they try to prepare the courseware. Many of these problems originate in the nature of disciplines, which are without exception characterized by fuzzy boundaries and internal dissension. For example, a survey of a selection of standard textbooks on introductory statistics will reveal considerable differences among authors about what should be taught at this level, the order in which it should be taught, and the ways of teaching it. Even highly-respected texts have curious gaps. Such problems are multiplied in the inexact sciences and the arts. Deciding on content is far from easy.

Other problems arise during attempts to match the undoubtedly powerful functions of various IT systems with the characteristics of learners and the nature of particular learning tasks. Developing teaching material for these systems can be much more demanding than writing a textbook or giving a lecture. Learning theories offer little help.

Take, for example, the three principal types of computer-assisted learning: simulations, drill-and-practice, and tutorials. Simulations are valuable in numerous ways, but designing them to convey particular concepts and teaching points is difficult and expensive. Drill-and-practice courseware is often extremely boring and at its worst does only what can be done as well and more cheaply with paper and pencil. Tutorial courseware depends for its quality on the accuracy with which its developers predict the mistakes students will make and how best they can be helped to recover from them. Behind all three types lies the issue of whether the teacher, through the computer, should try to exert so much control over the learning of students in higher education.

Fortunately, any academic wanting to begin using IT for teaching can learn from the mistakes – and successes – of colleagues in many British institutions of higher education, some with 10–20 years of experience to draw on. For example, the Open University's Academic Computing Service uses IT, in the form of computer terminals up and down the country linked to a large computer by telephone lines, to provide computer-assisted learning to students following certain courses. One set of courseware being used, CALCHEM, was originally developed in the Computer-Based Learning Project at the University of Leeds. CALCHEM, excellent as it is in many respects, has had its critics and aroused controversy over its content and approach.

Leeds has also developed a large set of applied statistics courseware, offering tutorials, simulations, tests and exercises. Probably Leeds and the Open University together have the most experience of problems in developing, over the past decade or so, the largest amount of courseware for mainframe computers in this country. The Leeds group has recently been exploring applications in law, medicine, and mathematics in biology. To quote two examples from other universities, computer-based tutorials, experiments and simulations in nuclear engineering have been developed at Queen Mary College, London, while at Liverpool a suite of programs now provides simulations for teaching production engineering.

All these developments have been relatively expensive in terms of academics' time, systems analysis and computer programming time and in tying up large computers and their operators. The same could be said, but more so, about major courseware development projects in North American universities, such as PLATO at the University of Illinois. The 1970s were a decade of prototype development using much more expensive computers than those in use today, but labour costs were always higher than equipment costs, and remain so.

In the past two or three years, teachers in higher education have gained direct and cheaper access to computing, in the form of microcomputers. Before, they had to depend on a large staff to program and operate the mainframe computers. Microcomputers now offer considerable computing power and are much more "user-friendly". Without too much difficulty, a teacher in a university or polytechnic can learn BASIC or

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another programming language on a microcomputer, and he or she may begin to experiment with teaching through this machine. The best programming, however, will still be done with the help of professional programmers.

The country still lacks a major programme in using microcomputers in higher education along the lines of the mid-1970s National Development Programme in Computer-Assisted Learning or the present Microelectronics in Education Programme, which is aimed at schools. The cost of producing one hour of teaching via IT is still very high, even if equipment and programming costs are declining. Only through economies of scale, yet to be realized, can these costs be justified.

Microcomputers are now being used to control other IT devices for teaching in higher education. The Open University's Institute of Educational Technology, in collaboration with the Faculty of Technology and the BBC, is experimenting with interactive videodisc. Since a single videodisc can carry 54,000 frames of information, each one of which can be called up separately by the microcomputer, students can "branch" through the disc's teaching material, which may include moving or still pictures, text, diagrams and one or two sound tracks, while being able to use the microcomputer for other learning purposes, including carrying out certain kinds of computing. A prototype interactive videodisc may go into the Open University's summer schools next month. This development stems from work with interactive videotape and from this institute's surveys of recent American research.

Another recent IT application developed in the Open University with support from British Telecom is CYCLOPS, a remote "blackboard" for tutorials. Tutor and students, in several locations, are linked by telephone lines, over which they have voice contact, as in telephone conferencing. The lines also link screens for telewriting. The tutor may wish to draw on his screen; what he draws appears on his students' screens and vice versa. He can ask one of them to add to his drawing, or to explain some aspect of it. Alternatively, he may ask his students to watch a short explanation, prepared beforehand and recorded on an ordinary audio tape-recorder. This material, ranging from simple line-drawings to sophisticated animations, will appear on the screen, often with spoken commentary. Although CYCLOPS is being used for tutorials in the Nottingham area for the third year running, the Open University soon expects to see the system's capacities incorporated within a small microcomputer, possibly making it available to teachers and students throughout higher education.

Other national IT developments are proceeding without much impact on higher education. Cable networks laid principally for television are already being used by several American universities to reach local students in their own homes or study centres. In Britain, new cable systems may be in operation within two or three years, but higher education is grossly unprepared to take advantage of any opportunities offered by cable companies. Similarly, although the direct broadcast satellite is due to be launched in 1986, there are no signs that higher education will be able or ready to use this form of IT or its immediate successors, which are likely to be devoted entirely to entertainment.

To summarize, it is safe to say that IT *is* having a substantial impact on higher education in this country, even some impact on teaching and learning approaches, but we are only at the beginning. Some sceptics feel that a lot of money is being poured down this particular academic drain, and that IT for teaching must be proved cost-effective. They ask what IT can do that human teachers cannot, and whether IT can teach any better? Although those questions cannot yet be answered with confidence, we can be cautiously optimistic that over the next few years universities and polytechnics will exploit IT further and that we shall see many more projects advanced by academics with the aim of improving teaching and learning in higher education. In the meantime, teachers at all levels need to increase their understanding of IT, lest it exploit *them*.

David Hawkridge

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A new generation of machines

As recently as last year, most educated people had still never heard of artificial intelligence (taking AI to be an abbreviation for a rather different enterprise). Today, one can hardly turn on the television without having an item on artificial intelligence beamed into one's sitting-room (though it is sometimes called "knowledge-engineering" or "machine intelligence" instead). Sometimes the topic is the field as a whole; sometimes it is one aspect only, such as "intelligent robots", "expert (knowledge-based) systems", or educational "turtles"; and sometimes it is its relevance to psychological and philosophical understanding of the human mind. In short, the first half of 1983 has probably seen more media coverage of AI than all previous years combined.

The "obvious" explanation for this state of affairs is false. The explosion of public interest does not reflect any radically new ideas in the field, nor any recent technological successes essentially different in kind from what was already being done in the 1970s. Why, then, has it occurred? What has made the invisible suddenly visible? In a fairy-story, the answer might be "A magic potion". In real-life, it is more likely to be "Money, or the fear of losing it".

To be sure, 1982 was "Information Technology Year". Perhaps some producers and editors woke up each morning thinking "This is Information Technology Year: what can I do today to help us all remember it?" – or perhaps not. Then again, personal computers were widely advertised, and sales far outstripped the most optimistic forecasts. The newly available BBC microcomputer even had its own television series, a dozen programmes on computer literacy which have already been repeated. And newsagents are full of "personal computing" magazines. But personal micros are (as yet) predominantly used for playing games. News-items about teenage whizz-kids striking it rich by programming new sorts of space invaders have nothing to do with AI, which is concerned with a *specific class* of computer program: those carrying out tasks requiring complex and varied internal descriptions of situations, and powerful planning and reasoning abilities.

Many such tasks are normally marked out by us as "intelligent": playing chess, doing mental arithmetic, planning scientific experiments, diagnosing diseases, and the like. But some are not typically termed "intelligent", for we can all perform them effortlessly – indeed, they are not normally (if ever) open to conscious inspection or control. These capacities, many of which we share with the higher animals, include: recognizing the three-dimensional shape of half-hidden objects, even when obscured by shadows; seeing that an approaching stranger is friendly rather than hostile; using natural language to hold a conversation, or to tell or listen to a story; placing a fragile bottle in the empty space on a cluttered table; and so on. Despite the attention paid by psychologists to vision, language, and motor action, it took AI to show us that highly complex and varied internal descriptions and inference processes must be used in these activities too, whether we are conscious of them or not.

The prime factor causing the sudden upsurge of public interest in AI in Britain (and in the United States) was the announcement of Japan's "Fifth Generation Computer Project", a ten-year national plan for the 1980s, jointly funded by Japanese government and industry to the tune of £540,000,000. Japan defines the first four "generations" in hardware terms: machines based on valves, on transistors, on silicon chips, and on Very Large Scale Integration (VLSI). The predicted fifth generation, as well as having improved hardware, is defined in terms of an additional ingredient: intelligence. Artificial Intelligence, then, is central to this Japanese initiative. Its ambition is to develop large parallel-processing machines and intelligent software, enabling computers of the 1990s to understand Japanese and other natural languages, to interpret the speech of many different individuals, to act as intelligent assistants in a wide variety of tasks, and to provide advanced problem-solving and sensori-motor abilities for mobile domestic and industrial robots.

To plan is not necessarily to perform, and there is no certainty that the Japanese project will succeed – especially if the timescale is taken literally. Although each of the tasks mentioned above can already be achieved to some extent by AI-programs, all these programs are limited to a very narrow domain. Once having accepted (perhaps with some initial surprise) that quasi-intelligent performance can already be coaxed from a computer, most people underestimate the difficulties involved.

This is especially true of the apparently simple tasks which all of us do every day, and for which no special expertise or training is needed: many of these are stubbornly resistant to current AI techniques. Indeed, one of the prime intellectual lessons of AI is the previously unrecognized richness and subtlety of human "common sense".

By contrast, it is possible to program a useful level of specialist expertise, at least for circumscribed problems where relatively simple forms of reasoning suffice. Programs called "expert systems" are already commercially available, some are being used experimentally in institutions (such as hospitals), and many more are being developed. Some assist with consultant advice in problem-areas such as medical diagnosis and prescription, genetic engineering, chemical analysis, and geological prospecting for minerals and oil.

To make evaluation easier, expert systems can display the chain of reasoning behind their advice. The programmer builds into them as much as possible of the theoretical knowledge and "rules of thumb" of the experienced expert, and can improve them by adding new information. But beyond a certain level of complexity, adding more information to existing systems can make it difficult to control the interactions between rules. In general, the scope of current expert systems is severely limited, and much further research (indeed, a fundamentally new approach) will be needed to make a significant advance in their reasoning power. Even so, a few already give more reliable advice than all but the very best human experts, and one or two surpass us all.

Even if the Japanese achieve only a limited degree of success, their economy – and ours – will be deeply affected. Having no raw materials, and a limited agricultural base, they are gambling on making themselves the world-masters of information technology. To this end, they are deliberately harnessing the power of AI – and the research results and consultant advice of first-rate workers from Britain and the United States. Unless we do likewise, we shall be disastrously overtaken in the economic race.

The notorious Lighthill report in the early 1970s did grave damage to British AI (leading to the emigration to the United States of some of our best young researchers). Were it not for the Japanese its influence might yet prevail in the corridors of power. But the current Government, advised for instance by the Alvey committee on information technology, has recently

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become aware of some of the economic dangers and opportunities. Despite its record of savage university cuts, it has already done something about the educational implications.

Out of a governmental budget of £200,000,000 for supporting advances in information technology, most (£150,000,000) will be devoted to research and development in industry. These projects (many of which use AI-techniques) will be financed equally by industry, thus bringing the national total to about £350,000,000. The remaining £50,000,000 has been set aside for academic institutions, for faculty salaries and student grants. Seventy new university posts in information technology have been founded this year (to start in the autumn), and about 30 more are planned for next year. Of the 70 immediate posts, 30 are for "new blood" appointments, and 40 are for MSc conversion courses.

Within this new backing for higher education relevant to information technology in general, something has been done for AI in particular. A few of the 70 new posts have been assigned for courses in AI, including MSc conversion courses focussed on knowledge-based systems. The Alvey committee's advice has been diluted: it recommended that education in AI – relevant especially to knowledge-based systems, logic programming, the man-machine interface, and robotics – should receive significant support, but the proportion of educational funds earmarked for AI is less than what might have been expected. Gift-horses, of course, should not be looked in the mouth – especially since they are almost an extinct species within higher education today. But one might wish that these welcome animals had been given rather more teeth. For all that, information technology is the one clear growth area in higher education, and AI in British universities has been given a boost.

In consequence, the few departments offering AI at undergraduate or graduate level will grow in size – and possibly in number. The four main institutions now providing such training are Edinburgh, Imperial College, Essex and Sussex. Several other universities (including Cambridge, Exeter and Warwick) already offer undergraduate and/or postgraduate courses based on AI to computer scientists and psychology students, and the number of such courses will probably increase.

At Edinburgh, AI is available as an option for students taking degrees in various other subjects (including psychology and computer science), and the postgraduate programme in epistemics relates AI to psychology, logic and linguistics. The Edinburgh AI-group has a firm computer science base, and there are strong links with robotics research in the university. At Imperial College there is an emphasis on logic-programming and expert systems within the computer science department, and some of the faculty act as consultants in this area to the Japanese. Essex runs an interdisciplinary graduate programme in cognitive science which includes AI; it has a bias towards natural language understanding and machine translation.

At Sussex, AI is taught to undergraduates and graduates within the cognitive studies programme, which integrates it with psychology, philosophy and linguistics: undergraduates "major" in one of these, and take two others as well (including AI, if it is not their major). An MSc conversion course in knowledge-based systems is to start this autumn. Artificial intelligence is also taught at Sussex in experimental psychology, in the logic major, and in the school of engineering and applied sciences.

Students of AI learn about the potential for its application, in such areas as expert knowledge-based systems, natural language processing, "friendly" man-machine interfaces, robotics, or logic programming. Given the increasing public and industrial interest in AI, attention should be given to the broader social implications of these technologies. This attention should not come only from specialists in the field. Academics in other areas (such as law, history and the social sciences) should learn about AI and study its social implications. If they do, the content of higher education will be correspondingly affected.

Modes of learning in higher education will also be slowly affected. The few existing undergraduate tutorial programs – in logic, for example – which are written in AI-programming languages (such as POP-11 and PROLOG) do not incorporate powerful AI techniques. But much research is being devoted to "intelligent tutors" based on these techniques. Such programs are not "drill and practice" devices, or branched teaching machines of the Skinnerian variety. They will be able to respond more flexibly, running interactively so as to ask and answer questions about the difficulties that may underlie the student's performance.

However, these ambitious AI-based tutorial programs will not be useful in higher education (or in schools) for a long time yet. In addition to precise representations of the specific content-area, such programs will need a model of the student's knowledge and thought processes. The good human teacher uses such a model intuitively, in choosing the level at which to pose a question or in deciding what hint may be a helpful clue. Specifying how the teacher builds up such intuitive knowledge in a complete and precise form will be no trivial matter. This is not to deny, however, that less ambitious programs will increasingly be used as tutorial aids in universities.

Teacher-training is not directly affected by the recent surge of government funding, but it is already recognized that it should include reference to uses of computers in school which are based in AI. At present, not only are most teachers unfamiliar with computers and their possible educational uses, but most of those who do have some familiarity with them have little or no idea of their real potential. Even students with A-level computer science may require remedial teaching when they get to university, to undo the harm done by their concentration on programming languages (such as BASIC, PASCAL, or FORTRAN) which are unsuitable for AI purposes. It is virtually impossible to develop "intelligent" programs in languages like these (though once developed, they could in principle be written in any language). So A-level students, and many current users of personal microcomputers, may believe that flexible quasi-intelligent information-processing is impossible for computers.

In their discussion of *The Future with Microelectronics*, Ian Barron and Ray Curnow (Open University Press, 1979) pointed out that, as well as vocational training and adult training, we shall need contextual education to ensure that everyone is aware of the technology and its possible consequences. As more non-experts become users, there will be an increasingly urgent need for relevant non-specialist courses in higher education. They conclude that "It should perhaps be a target that every graduate has the capability to use computer systems and a thorough understanding of their potential."

One cannot but agree. And to "potential" here one must add "limitations – for (like human beings) AI-programs are not fool-proof systems guaranteed to reach the right answer, nor is their reasoning "objective" in an absolute sense. Intelligence includes being able to make sensible decisions *without* having all the evidence in. One can do this only on the basis of one's expectations or previous knowledge – which will sometimes prove inadequate. In principle, the conclusions of a computer program are open to challenge just as a person's are.

These points must be brought home to the general public, if they are to be able to take advantage of this new technology rather than being exploited by it. For most people, the ability to write usable programs will be less important than the ability to use – and to avoid misusing – programs written by others. This sort of computer literacy can be fostered by ideas drawn from AI, used so as to convey a deeper understanding of the potential and limitations of programs. Several universities are already running courses with these aims in mind.

For instance, at Sussex we have found that students in their first days of programming can be brought to see that even an "intelligent" program is incapable of doing many things that one might *primo facie* expect it to do, and that even a non-specialist user may be able to modify the program so as to make it less limited. A conversational or visual program, for example, is initially impressive, but the user soon realizes that apparently "obvious" inferences about the meaning of the input words or pictures are not actually being made by it. The beginner-student can then attempt to supply a missing rule so that the un-made inference can now be drawn. The programs have been designed so that this will sometimes be possible.

At other times only a complete re-organization of the program, or a switch to a radically different type of program, is required. This too becomes evident fairly quickly (though *what* change is required may of course be far from evident). Since they themselves are altering these complex systems, students gain confidence in the activity of programming. More important, they realize that programs, however impressive they may be, are neither god-like nor unalterable.

What is more, if students are provided with facilities to write programs in AI-languages, they can be encouraged to view intelligence as a complex, constructive, self-critical activity – an attitude likely to improve their approach to all their courses. At Sussex we teach AI-programming to a wide range of first-year students in the arts and social sciences. Students have access to a "library" of specially-designed programs in various domains, which they manipulate or use as subroutines in their own programs. If they later decide to take a course in AI, they will learn how to implement such programs themselves. But if they do not, the experience of this teaching environment in which they can fairly easily explore variations and extensions of interesting programs tends to improve their motivation for learning in general.

I have said nothing about the intrinsic interest of AI, for it is the technological and economic implications which have led to the recent change in public awareness and governmental support. But it is an intellectually exciting field. Considered as a branch of computer science, it offers a challenge to our understanding of different types of computational processes and representations. Considered with respect to the human sciences in general, it has already affected the content and methodology of these disciplines. Collaborative research in the general area of "cognitive science" is growing, and several universities offering interdisciplinary courses within which AI is an integral element were mentioned above. Eventually, courses in AI may be routinely offered as an integral part of degrees in psychology, philosophy, or linguistics.

Some readers may shudder: is not psychology reductionist enough? But – contrary to what most people assume – AI is not reductionist, as behaviourism was for example, and it has already made "mind" theoretically respectable again. Because its central concern is the internal processes concerned with the representation of knowledge (or belief), AI encourages a constructive view of intelligence, and an "image of man" that is humanist rather than mechanist. This fact could, in principle, have a significant effect in areas of higher education far removed from expert systems and robots.

Artificial intelligence has clearly begun to influence higher education and will continue to do so. The obvious sense in which this is so concerns training and research in AI as such, including studies of various industrial and commercial applications. Less obvious is its effect on the human sciences in general, where it has provided a new appreciation of the problems of explaining human abilities, and contributed to a resurgence of interest in the mind and mental processes.

Margaret Boden

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Instilling a sense of direction

"Why did I come here?" These words were engraved among the doodlings of generations of students on a desk in the lecture theatre. A response to a boring lecture or an over-taxing exam? Or was some poor student experiencing the dawning of disillusionment – that this was not what he or she wanted to do with their life.

It is sad to reflect that some students, even if only a minority, may not enter higher education as a result of mature consideration of how it fits in with their personal development and/or career aspirations. The sub-culture of the later years of school can occasionally generate its own momentum so that, as one student put it, "It was just assumed that you would go on to university." What one does there and how this relates to any longer-term personal objectives can then become secondary considerations. The result for some may be the doodling on the desk.

Rational choice of a higher education career has two prerequisites. The first is self-assessment. Students should have a realistic awareness of their own strengths and weaknesses, interests and aspirations. The second is knowledge of the career opportunities potentially available to them. They should choose on the basis of knowledge, not ignorance of the possibilities. Helping students to get to grips with these issues is the function of the careers education programmes which schools are now evolving, and to which computer technology is beginning to make a significant contribution.

There can hardly have been a time when good careers education was more badly needed. The transition from school, through higher education, to work has never been more difficult. The penalties for those who are ill-prepared for that transition have seldom been more severe. In times when job opportunities were plentiful, young people could afford to make initial mistakes. Today, with youth unemployment forecast to reach levels of 70 per cent or more this year, and even graduate unemployment beginning to show a significant increase, the luxury of a second chance is becoming a rare privilege.

In these circumstances, careers education is clearly important. It is unkind to allow young people to drift through school in ignorance of the employment opportunities and problems that lie ahead of them, leaving them to discover for themselves the frustration and disappointment of lost opportunities. It is also unnecessary.

Even if we cannot immediately create the jobs that students need, we can at least make them aware of the difficulties they may have to face. We can prepare them to make the most of the opportunities available, and we can help them to retain a sense of direction and purpose which may encourage their morale and maintain their self-respect. The provision of this kind of help must be a major objective of careers education programmes if they are to be relevant to the needs of today's students.

The Jobs Ideas and Information Generator – Computer Assisted Learning (JIIG–CAL) project is an attempt to address these issues by harnessing computer technology to the provision of careers education and guidance. JIIG–CAL differs from other computer developments in this field in that it is the only system of its kind in Britain which has been specifically designed to act as a comprehensive resource to support careers education programmes in schools. It is a joint development by the Department of Business Studies, Edinburgh University, and the Educational Computer Centre, London Borough of Havering, and is based on extensive research and development at these two centres.

The system aims to provide both pupils and those who advise them with ideas in the form of suggestions about jobs which can be explored as possible careers, and to supply information about each job selected. Through the experience of thinking their way through the questions it poses, JIIG–CAL also provides a valuable exercise in self-assessment and considerably improves pupils' knowledge and awareness of jobs.

Beginning in the fourth year (Scottish S3), pupils learn to use the system in a series of classroom lessons. This is a two-stage process, the first part involving an assessment of the pupil's interests using a carefully researched psychometric questionnaire called the Occupational Interests Guide. The Guide helps pupils to sort out the broad areas of work (or job families) in which they are most interested. In the second stage they complete a questionnaire providing the system with further information about school subject preferences, and their likes and dislikes for a number of factors related to jobs – such as place of work, physical conditions, hours, training, study, and so on. A special illustration booklet is used at this stage, with cartoons which provide a clear and amusing illustration of each job factor and help to hold the pupil's interest.

All of this information is matched by the computer programs against information on over 500 jobs stored in the JIIG-CAL job-file. A full range of careers is represented from unskilled and semi-skilled jobs, through to professional and managerial ones, so that the system can be used by pupils of all levels of ability. The information about each job is carefully researched and regularly updated by the Edinburgh team.

The system compares each job with the information supplied by the pupil, grades the jobs for suitability and selects the 20 most suitable jobs to be printed as suggestions for consideration. Although the logic on which the matching algorithm is based is too complex to explain here, it is on the concept of the "best balance" of likes over dislikes that the JIIG-CAL matching algorithm is based (see figure one). The system does not "accept" or "reject" jobs. Instead it weighs up the "pros and cons" of each job and gives it a points rating. This will be close to one if the balance is largely on the negative side, and close to nine if it is largely on the positive side. The jobs are then sorted so that those with the highest points ratings go to the top of the list and the top 20 jobs are then printed. Thus each pupil gets the 20 most suitable jobs from the job-file.

When these job suggestions are being printed, different print formats may be used. "Normal" print, which is most commonly used, is designed to give the bare essentials about each job. It gives pupils just enough information to decide whether or not they wish to explore that job any further. If they do, they can request a "maxi" print which is much more detailed and contains virtually all of the information held by the system about that job.

The job information contained in these printouts must represent a "national picture", since the system is now in use from Inverness down to Devon. However, facilities are also provided which enable careers services to insert information about jobs in their local areas. This can cover not only the potential availability of each job within the area, but also the specific employment, education and training opportunities offered by local employers, colleges of further and higher education, and so on.

JIIG-CAL is not designed to replace conventional careers talks about opportunities in various industries, the armed forces, and the like. What it can do, however, is to select from general careers information of this kind, that which is personally relevant to each pupil. Indeed for some pupils, their JIIG–CAL printout is one of the few experiences of school in which they have received something directly relevant to themselves, rather than as just one of a class. All printouts are in plain English, and pupils keep their own copies so that they can take them home and discuss them with their parents and friends. Hence individual motivation can also lead to a wider family involvement.

JIIG–CAL is now running in 40 installations throughout the UK, is used by about 50,000 pupils annually, and interest in the system continues to grow steadily. For those who will enter higher education, it provides a framework for realistic self-assessment and helps with the formulation of sensible long-term career plans. Hopefully it will contribute to reducing the number of students who merely drift into courses without sufficient forethought.

For those who are completing their higher education studies and entering

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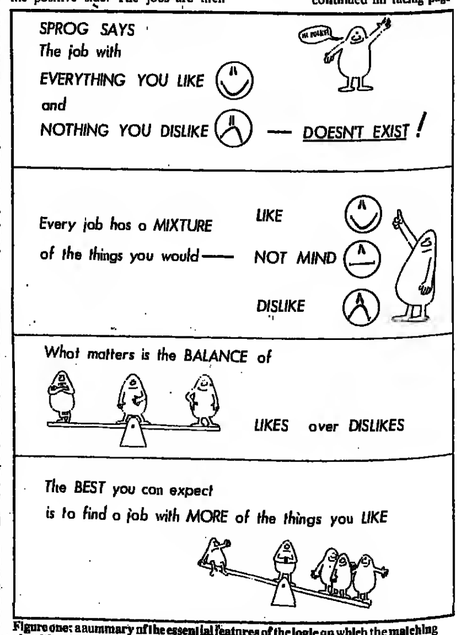

Figure one: a summary of the essential features of the logic on which the matching algorithm (pupil to job) is based.

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the world of work JIIG–CAL also has a lot to offer. It has now been used experimentally with a small group of second-year and third-year undergraduates, and is currently being evaluated, together with some similar systems, for possible use in the careers guidance of mature students and of adults outside the higher education sector. The results so far are encouraging and suggest that, with relatively few modifications, the project could provide a useful resource for a wider range of students than the school population with whom it is mainly used at present.

It would be encouraging to think that tomorrow's students might engrave on their desks – "I know why I came here"!

S. J. Closs

S. J. Closs is lecturer in business studies at the University of Edinburgh. An information booklet (price £2 including postage and packing) is available from the JIIG-CAL Project Secretary, Department of Business Studies, University of Edinburgh, William Robertson Building, 50 George Square, Edinburgh EH8 9JY.

Facilities for computer education

Mid-Kent College of Higher and Further Education is exceptionally well-equipped in the area of computer education. The college, through its ten teaching departments, runs an extensive range of courses in many different disciplines. Currently about 10,000 students are taking full-time part-time and sandwich courses, ranging from craft to postgraduate level. This, coupled with the fact that the college has five geographically-separate teaching centres, posed a considerable challenge in providing appropriate facilities for teaching in the all-pervading field of computer education. I propose here to outline the ways in which these problems have been tackled.

The college now has a purpose-built computing centre housing a mainframe computer, and seven microcomputer laboratories with plans for a further one. Additionally, each department has a number of individual microcomputers for their exclusive use so that, in all, the college currently possesses nearly 150 microcomputers. The college runs courses in computer studies up to HND and TEC/BEC certificate level and also provides computer education as a component of courses in, for example, science, building, management, engineering and business studies. A wide range of short courses in different aspects of computing is also run regularly for the general public, together with tailor-made courses for local firms.

The computing centre contains an ICL2904 main-frame digital computing system with a full range of peripheral equipment, and 20 microcomputers (five each of Research Machine 380Z and 480Z plus ten BBC). Besides serving the needs of the college, the centre also acts as a resource for all the schools in Kent and the other colleges in the county. Additionally, the regional coordinator for the southern region of the government-sponsored Microelectronics in Education Programme (MEP), aimed at introducing microcomputers into schools, is based at the centre. The centre has also been running, since 1969, a variety of computing courses for teachers. Additional services to schools include the batch-processing of programmes on the main-frame computer, lectures and demonstrations to school parties, and advice on the selection and use of hardware. The centre also operates a software library, shortly due to become the regional library under the MEP, which currently contains about 300 programs, mainly for use in computer-aided teaching. The centre also runs a computer-based careers information service on behalf of the Education Committee of the Kent County Council.

In the microcomputer laboratories, our aim has been to have a maximum of two students to one microcomputer, the ideal ratio being one-to-one. The seven existing microcomputer laboratories were equipped with different systems to provide a wide range of facilities and to reflect the specialist needs of the individual departments.

The Chatham centre of the college has four microcomputer laboratories. One is equipped with 18 systems based around the North Star Horizon instrument and is mainly used for teaching computer programming. Each Horizon system is linked to an ELBIT video display unit, and each pair of systems shares a switchable printer. Five of the systems are equipped with high-resolution graphical facilities while one system has a low-resolution colour graphics display of the kind used in teletext.

A second laboratory contains 18 North Star Advantage microcomputers and is used for a variety of courses. As the Advantage is "user-friendly", it is easier for students to start off on this equipment and progress to the Horizon. Among other educational activities, the graphics capability of the Advantage is used to run a graphic design module for students taking the DATEC course at the local college of design, a similar course also being run at another centre of Mid-Kent College.

A third laboratory, for calculations, contains 16 Commodore PET microcomputer systems, a Commodore 8000 Business system, a Hewlett-Packard 30 computer, an IJJ high-resolution graphics system, and ICT Gunnamatrol interface equipment. These facilities are mainly used by students of science, engineering, and business studies.

A fourth laboratory at the Chatham centre, equipped with 12 Tandy machines, is housed in the management block to deal with, for example, the postgraduate Diploma in Management Studies, the Institute of Industrial Managers course, and the Institute of Cost and Management course.

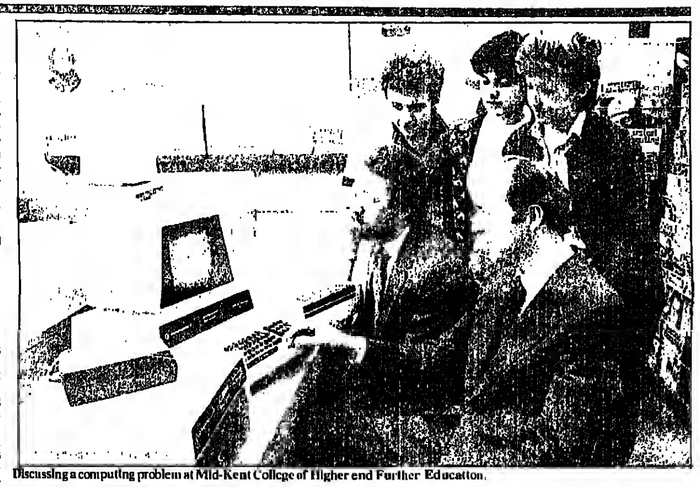
At the Rochester centre of the college, a laboratory fitted with 12 Advantage machines is used on a variety of courses. The Maidstone centre has two microcomputer laboratories, one containing 12 Advantage microcomputers, the other 16 Tandy machines, all of which are used for business studies courses, including the computer studies option of the BEC National Diploma.

Individual departments also have a number of microcomputers which are used for teaching activities inappropriate for the laboratories. The science department's ZX81 and two Commodore PETs are used, for example, with a high-resolution graphics facility to study spectroscopic information and to demonstrate concepts such as the phase rule. Land surveying students use a Commodore PET, for example, to analyse data from an automatic electronic distance measuring instrument. Civil engineering students are given "hands-on" experience of a fully-automatic system, based on the Commodore PET, for the physical testing of soils; and computer techniques are used in the same department for structural analysis and testing. Research in science and other fields is aided by a computer-based information-retrieval system linked to various data bases throughout the world. Production engineering students use computers for the control of machine tools and for the study of computer-aided design and manufacture. Microelectronics laboratories have also been specially equipped for electrical engineering students to study the microprocessor (the electronic "heart" of the microcomputer) and its applications to the control of industrial plant and other processes.

These are just some of the ways in which computer education is being realized throughout the college.

C. M. Fletcher

C. M. Fletcher is Director of the Business Advisory Centre, Mid-Kent College of Higher and Further Education.



Discussing a computing problem at Mid-Kent College of Higher and Further Education.

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Analysis of biological data

The use of computing methods in many areas of biological research has developed relatively slowly in comparison to other scientific disciplines. This mainly reflects the qualitative nature of much traditional biological research as well as reluctance on the part of many biologists to explore more complex quantitative methods of data analysis. For a number of reasons, however, this situation is now changing.

First, the boundaries between biology and other scientific disciplines are becoming increasingly flexible as chemists, physicists, engineers and mathematicians are using their own more quantitative methods to analyze biological problems. Second, computers have become very much cheaper and consequently more available. Third, there has been a steady increase in the quantities of data and information about the ways in which biological systems work. Inevitably, therefore, biologists are now looking to computers as essential tools for the storage, retrieval and analysis of biological data.

One of the most dramatic impacts made by computers in biological research has been in the structure of biological macromolecules. The main objective in structural studies is to identify the spatial positions of all the atoms in a molecule. Determining the structure of these complicated molecules relies on the analysis of large quantities of data and scientific ingenuity.

The data consist of sets of scattering patterns which are generated when a crystal containing a molecule is exposed to heavy doses of X-rays. The rays are scattered by the various atoms in the molecule depending on their relative positions and analysis of these patterns thus informs us about the relative locations of the atoms in the molecule. The size of the data set can vary from many thousands of reflections to several millions depending on the number of atoms in the structure. Handling data sets of this size would be unthinkable without a computer.

The crystalline structure of haemoglobin, for example, is made up of about 4,800 atoms of different atomic weights and gives nearly 120,000 reflections. Certain crystalline virus components give several millions of reflections. From the data storage viewpoint this is not usually a problem, as even modest computer installations generally have peripheral storage capacities of up to 30 megabytes and at least two magnetic tape units.

Data analysis, however, is computationally demanding (many hours of mainframe processing), as it involves the repeated application of complex mathematical techniques aimed at differentiating between the scattering contributions made by all the atoms in the structure. The results from the analysis only give approximate information about the positions of the atoms and the biologist has to combine this information with data about the chemical composition of the molecule before a correct structure can be found.

Having determined the structure, the next step is to identify the biologically significant features in the molecule. Fortunately, recent developments in computer graphics provide us with a powerful tool for structure interpretation.

Interactive computer graphics allows the biologist to display the structure on a graphics terminal from a variety of different angles and to make detailed investigations of regions crucial to biological function. This would be impractical using physical models, as the vast number of atoms in the structure make the model both inflexible and difficult to handle. Also, recent advances in colour graphics have made it possible to assign different colours to groups of atoms having different biological properties, and so enable qualitative assessments about their relative biological functions. Application of these graphical methods to molecular structures from different bacterial, amphibian and mammalian species has enabled biologists to locate features common to the species and provide us with important information about the processes governing evolution.

The rate at which the number of molecular structures can be determined is limited by experimental rather than computational methods. This is because it is often difficult and sometimes even impossible to prepare crystals that are suitable for X-ray analysis. During the past 25 years, for example, the structures of only 80 protein molecules have been determined and biologists are naturally asking whether computers can be used to predict the correct structure given the chemical information about the sequences in which certain groups of atoms (amino acids) occur. This has resulted in a thorough examination of many of the known structures with a view to formulating rules about the relative positions of atoms in the structure.

Several computer-based methods have now been developed for structure prediction based on our chemical knowledge of the molecule combined with the information on the known structures. These methods have proved successful in predicting the correct structure of certain groups of atoms but as yet there is no single method providing a complete *ab initio* prediction. In the cases in which no experimental data are likely to be available for analysis, the methods nevertheless provide the biologist with some information about specific questions concerning the relationship between molecular structure and function.

Another important component of computing in contemporary biology is its potential for dramatically improving traditional methods of data analysis. In biology as in other disciplines a significant proportion of data analysis is concerned with modelling. This involves the presentation of empirical data in terms of a simplified but theoretically meaningful representation of the physical world. Undoubtedly the most revolutionary example of modelling was demonstrated by the early work in quantum physics. Advanced computer technology can now be applied to the models of quantum physics in a way which is helping biologists to understand the mechanisms responsible for molecular interaction and specificity.

Quantum physics enables us to represent a molecule as a set of nuclei linked by electrons. The mathematical equations representing this model can be programmed on a mainframe computer to give information on the electron distributions and energies of molecules in different situations. The electron distribution associated with the outer atoms of the molecule determine the shape of its surface. The complementarity of shape between molecules in minimum energy states partly determines the way they combine to produce a chemical reaction in the cell. Determining the energies and shapes for a series of molecules enables us to say which molecules are likely to combine and under what circumstances. These studies are currently being applied to series of drugs to increase our understanding of the mechanisms controlling drug specificity and thus improve their efficiency.

However, routine application to understanding the chemical basis of interaction in larger systems is currently limited by available computer processing power. Even the world's most powerful mainframe computer would take thousands of hours to perform the quantum calculations on large structures. Application to smaller key molecules such as those involved with transfer of electrical impulses in the nervous system or to specific regions of the larger molecules nevertheless provides us with significant information about the mechanisms of molecular biology.

The above examples show that computing is essential to an understanding of biomoleculor structure and function. In the case of whole organisms made up of thousands of cells comprising millions of molecules, the structure and function of which are largely unknown, computing is equally important in helping biologists to identify causal mechanisms responsible for the growth and development of the organism. Studies on the development and growth of components in the newt embryo, for example, have shown that computer models can be used to explore the dependence of growth on the behaviour of individual cells. This can be illustrated by first explaining what we understand about cells in relation to growth.

In an embryo, the behaviour of individual cells strongly influences its growth and development. The result is therefore a complex relationship between the development of the embryo and its component cells. Exploring this relationship in more detail involves first setting up a model consisting of mathematical equations relating our assumptions about cells (such as their growth rates, shape changes, and the forces they exert on one another) to time. Our data, obtained from laboratory experiments, consist of some limited information about cell behaviour and the shapes of the embryo components at different growth times. By varying our time constraints under computer control we can compare the shapes obtained experimentally with those generated mathematically on the computer at any specific time. When these correspond we can say that our assumptions about cellular behaviour are valid.

As the modelling of cellular processes for whole organisms can be prohibitive in terms of computer processing times, even for a mainframe computer, we may be forced to approximate our model at some stage. The neural plate from the newt embryo, for example, consists of about 10,000 cells. By averaging the constraints on individual cells to apply to groups of 30 cells the growth simulation process takes about 15 minutes of central processor time.

This method of computer modelling of time-dependent processes is also being used in the analysis and interpretation of the mechanisms governing bacterial cell growth and division. In this case the data are obtained from a series of electron microscope pictures (micrographs) which are recorded at various stages of the bacterial division process. These micrographs show that, during division, the profile of the bacterial cell wall changes dramatically as the wall synthesizes itself and grows into the cell. The profiles are traced from the micrographs and converted into digital records using a computer-controlled digitizing pen.

These records are next transferred into the computer and analyzed by comparing them with a series of mathematically-derived shapes. Agreement between the recorded profiles and derived shapes establishes a mathematical model representing changes in the cell wall during division. The model can then be used along with other mathematical procedures to explore the forces acting at specific locations in the cell wall and to determine rates at which new wall is synthesized during division, thus providing us with a detailed description of the events responsible for bacterial growth processes.

The above examples illustrate methods of computer modelling and analysis applied to data obtained from single cells or their components. However, not all biological or biologically related research is confined to explaining behaviour in terms of cellular activity. Neurobiologists, for example, are attempting to understand the hearing mechanisms in amphibian and mammalian species as determined by the various components in the auditory system, and computer modelling is playing an important part in this process.

In the frog, for example, experimental measurements obtained on the response of the ear-drum to sounds of varying frequency have shown that the drum was most responsive when the frog inclined its head at an angle to the direction of the sound source. The data have also shown that this angle of maximum response varies with frequency. These results not surprisingly raised a number of questions about the

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Interactive computer graphics displays are used to represent the surfaces of biologically interesting molecules. Studies of surface shape provide information about the ways in which molecules combine to produce chemical reactions in the cell. (Dr Barrett, with Beverly Block)

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processing mechanism of the frog's auditory apparatus. By constructing a mathematical model in which sound pressure could be equated to the interference of sound waves over a range of frequencies and directions, we have been able to show that the angle of maximum response could be explained in terms of the pressure differences between the ears for a substantial range of frequencies. This implies that the major effects of sound propagation in the auditory system of the frog are conditioned mainly through pressure changes rather than other components in the system.

From a computational point of view these latter two examples (bacterial cell wall growth and frog auditory system) are particularly interesting, as the modelling and analysis is possible using a microcomputer rather than a mainframe computer (as in the previous cases). There is no doubt that the microcomputer is providing biologists with the opportunity to familiarize themselves with computer methods. Furthermore, the increasing tendency to distributed processing networks means that computing power is readily available and can be easily interfaced to monitor and collect experimental data on-line.

The main limitation to using microprocessors is in the general availability of applications software and the difficulty of software transfer between different types of microcomputer. The problem would be considerably eased if biologists were easily able to develop and write their own software. As yet, however, few biologists are capable of this and, even if all biologists were capable and sufficiently interested, the question remains as to whether this would be scientifically efficient given that the time spent on software conversion and development would detract from biological work.

The alternative would be to employ a nucleus of computer professionals or to commission software packages to be developed in collaboration with industry. The choice between these alternatives depends on cost and the extent to which continual development of new software becomes necessary.

The future of biological computing will necessarily depend on both developments in biology as well as in computing. The ability to find routine solutions to many current problems, however, would require a substantial breakthrough in existing computer technology. One area where such a breakthrough could be of immediate importance is in the determination and understanding of molecular structure.

Here sufficient processing power would have to be available to enable us to explore many trial structures obtained by varying the positions of the atoms and thus to confirm the correct structure by finding which trial structure gives the minimum molecular energy. Extending our quantum calculations would help us in understanding the ways in which large molecules combine and their physical relationship to one another in a particular biological situation. Breakthroughs of this kind would have dramatic implications for the future of biology, as we would then have outstanding potential for extending our knowledge about structure and function in relation to cellular behaviour. In relation to many cellular functions, our knowledge about the contribution of molecular structure to cellular function is extremely limited and rather analogous to that of prehistoric man being presented with a wheel and carburettor and asked to define their function.

Excluding any immediate advances in computer technology, however, there is little doubt that new developments in biological research are coming to rely increasingly on existing computer methods. In genetic engineering, for example, data base techniques are being used in the storage and analysis of DNA sequences and in the resolution of mammalian cell proteins from electrophoretic gels. It seems equally likely that, as more experimental information becomes available, the modelling approach as a way of relating the biological activity of these disparate components will increase in importance. To succeed, these developments will undoubtedly have to be matched by a recruitment to biology of more mathematically-minded scientists and by biologists making greater attempts to come to terms with quantitative procedures.

One final but particularly important question relating to any future breakthroughs in computer technology is: how is this likely to occur? The computer industry is now recognizing that biological materials such as cell surfaces membranes have a potential capacity for storing and transmitting information more efficiently than existing hardware and future generations of computers may well have biological structures providing the main memory and storage components. In this event, we will have arrived at a paradoxical situation. Not only will the future of biological research depend on computing but the future of computing will depend on biological research.

Anthony N. Barrett

A. N. Barrett is a mathematical scientist in the Computing Laboratory at the National Institute for Medical Research, London. He is co-editor (with M. J. Gelsema) of "Computing in Biological Science" (Elsevier – Biomedical, 1983).

A dialogue with computers

Leicester Polytechnic has a long tradition of work in computing, starting in the days when, if the computer went wrong, one reached for a replacement valve. During the past fifteen years the computing section has taken a particular interest in interactive computing, where people use the computer directly – probably the norm since the advent of the microcomputer.

During this period the number of academic departments working seriously in computing has grown sharply. This has been particularly noticeable in the universities, where, with a few important exceptions, the subject was not considered a major discipline in its early days. Very recently, the amalgamation of computing, communications and signal processing under the heading of Information Technology has put interactive computing somewhere near the centre of the stage. The recently announced £200,000,000 programme of research and development based on the Alvey Committee's proposals demonstrates a belief in the importance of the area.

From a national point of view, the new skills, techniques and products that come from the recent initiatives must be directed towards useful systems. The alternative would bring us no more than interesting advances that would have no impact in the market place. Fortunately, the intellectual challenge of the required research is particularly exciting – requiring as it does the serious consideration of issues in a wide variety of traditional disciplines, ranging from psychology to electronic engineering.

Before the National Academic Body, the University Grants Committee and the Alvey initiatives, the Science and Engineering Research Council (SERC), under its "Roberts" programme, provided major funding to formalize and expand the multi-disciplinary research group at Leicester Polytechnic, with its focus on research into the human-computer interface. Although the group has always mixed fundamental research with applications projects, I concentrate here on the latter, as an introduction to the former can be found in the *SERC Bulletin* (summer, 1983).

There are two main aspects to the work. One is the provision of basic capabilities, such as speech input to computers accommodating many different speakers and recognizing large numbers of words. The other is the development of "software environments for interface construction", that is, facilities that help people building interactive computer systems to put them together, experiment with their effectiveness in use, and improve them as a result of that use.

At Unilever Research, in the Port Sunlight Laboratory, the Operational Techniques Section, led by Tony Baker, is developing expert systems to help the scientists working in a commercial field. As Stuart Moralee, one member of the team, says, the systems "store the knowledge of experts and make it available to others; and they explain the reasoning behind any judgment, which is very important. We are interested in them here because they allow wider access to the knowledge of our experts." (*Unilever Magazine*, no. 46). In order to help them build these systems the Unilever workers are using an important software package developed at Leicester. Though termed a "dialogue description language", its maincharacteristic is that it embodies a philosophy that can pay great dividends when designing and implementing interactive systems. The first level of design is seen to be in terms of the exchanges that take place between the human user and the system. A notation in which this level of design can be expressed is provided together with software that can understand the notation.

Most important of all has been the fact that it has proved impossible to predict precisely the reactions of humans to complex interactive computer systems. Thus design changes are often needed after the system has been

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implemented and operated by the intended users. The Leicester software greatly eases such changes. This flexible and responsive design has led, at Unilever, to a satisfying climate of interest and has galvanized the research developments in this area. Work is continuing in order to develop these facilities into a complex software environment for user interface construction. The ability to respond rapidly to design changes concerning the interface will remain a central requirement. We are just as much concerned with appropriate software as with powerful software.

In a much less esoteric, but just as problematic, environment the same approach is being applied to the design of simpler systems, including a simple word processor that is not powerful but is appropriate to the users. An investigation has been underway for some years into the use of computers in a school environment, particularly to help in English language teaching. We see today a very rapid growth in the provision of computers to schools and of support, in part through the national Microelectronics in Education Programme. The most striking thing about these developments is that we actually know very little about the usefulness of computers in schools. The Leicester project, which is supported by the l.e.a., is attempting to investigate this issue in one area. As many of the important factors of student(s)/teacher/support material/computer relationships are not specific to English teaching, the results might be expected to be of interest on a broader front.

A secondary-school student, discussing his reactions to using a computer in his English lessons, with Professor Edmonds.

As in all of the work of the Leicester research group, a team effort incorporating different disciplines is used. In this case the work is organized by Linda Candy, head of English in an upper school, but strongly supported by expertise in human-computer interfaces, software and psychology. The software design philosophy is the same as for the work at Unilever, but here a more elaborate structure of observation and monitoring is called for. Very often the interesting and perhaps the most valuable things that result from using computers do not seem to be intimately connected to the machines themselves. That is to say, it is the effects on human behaviour that at times is most significant. It is noticeable, for example, that a 14-year-old student, with a reading age rather below 10 years and with particular, related problems with spelling and writing has made rewarding use of the word processor that forms part of the integrated software system used. Having written a 200 word draft of a tall story that he had been asked to produce, he chose to work with it on the computer. The draft was full of errors and he refined and improved it for a while, but then became interested in a new possibility that occurred to him. He created a new tall story (in which he himself figured) which he directly input into the machine and refined it using the word processor. He consulted with his teacher and a dictionary (itself an important act) about spelling and punctuation until he was satisfied. The story, of course, was much longer than the original one. It was not required of him – he did the work following the experience of using the word processor. He become engaged, completed his task and finally took a printout of the story home to show his parents. The factors that affect this sort of engagement and response are vital, not just for children, but for all non-expert users.

Another project, led by Dr Derek Teather and in collaboration with Professor George du Boulay of the National Hospital for Nervous Disorders, has developed procedures to aid doctors in the differential diagnosis of cerebral disease. The computer system has had knowledge and expert opinion built into it, as in the case of the Unilever work. It helps the radiologist to interpret computerized tomographical scans. Currently, work funded by International General Electric is using the results of the earlier work to produce an online diagnostic and teaching aid for radiologists. A substantial element of this project is concerned with ensuring that the user interface is correct, that is, that the system is useful in practice. Again, this will involve trials with radiologists using possible systems that have been prototyped or simulated, so that the reactions to a real system can be assessed. Further funding for this important project is to be provided by the Department of Health and Social Services.

As mentioned above, when considering human needs in relation to computer systems, we find that certain basic capabilities are required but not readily available. One very significant such capability is that of being able to show things to computers, that is, computer vision. The Leicester group is investigating methods for "discussing" images with computers and consequently achieving this capability. Part of this work involves giving the computer the best possibility of extracting information from images automatically. The discussion can thus be at a reasonably high level. Several projects, led by Dr Abdullah Hashim, are working on this problem. The projects are mostly aimed at real applications, often trying to solve problems in an industrial environment. A large library of known image processing routines has been developed to assess the viability of a project and guide the researcher towards the best approach to a solution.

Leicester has many firms involved in handling textile materials, both in production (particularly knitting) and making up into garments. Our team obtained information from a local knitting firm, William Baker Limited, the Polytechnic's own textile department and the textile research association, HATRA, and has developed this work with funding from the SERC.

Defects are common in textile production because of the complexity of the machinery and the high production speeds used. Generally a sample of fabric is inspected to assess quality and only higher quality material is given 100 per cent inspection, where the cost of making defective items is high. Martin Lefley is aiming to use the computer to carry out inspection via a standard image, such as that seen by a television camera, to detect and classify defects. This approach has the advantage over other methods of automatic inspection of being able to interpret an image in much the same way as a human being does. Since, ultimately, defects will be found visually by consumers, this method has a certain aesthetic appeal: it matches the means by which the consumer will judge the fabric.

Preliminary research with plain fabrics has yielded encouraging results and work is also being carried out on the inspection of patterned materials. It is hoped that by next year a general defect detector and classifier working at the limits of present technology will have been developed leading to the development of a production machine capable of the continual inspection of textile material.

In the next few years an important aspect of the group's work is likely to be in the prototyping of future systems. Most of the work of the group, including that referred to above, is being brought together to ensure the capability of providing realistic simulations of the very advanced computer systems that the current government initiatives are aiming to produce. Because these systems will often be highly interactive and used by a wide range of people, most of whom will not be computer experts, the issues arising from the human factors will be crucial to their success.

A very clever medical aid system, for example, that a doctor cannot use is itself quite useless. The method that will be used to tackle the problem will be to arrange for potential users – doctors, for example – to use the simulations. The evaluation team, led by Dr Peter Innocent, will use a wide variety of qualitative and quantitative measures to assess usefulness. In this way the design of these systems can be based on hard evidence about the required characteristics rather than on the musings of computer experts, who often have a very special and atypical view of what makes a good computer system.

Ernest Edmonds

Ernest Edmonds is Director of the Human-Computer Interface Unit at Leicester Polytechnic.

BOOKS

Literary revolution

English Reformation Literature: the Tudor origins of the Protestant tradition
by John N. King
Princeton University Press, £28.00
ISBN 0 691 06502 0
Literature in Protestant England 1560–1660
by Alan Sinfield
Croom Helm, £11.95
ISBN 0 7099 2367 8

John King's fascinating book is the first detailed study of English literature of the reign of Edward VI. King argues that this literature is unduly neglected by modern readers because of the continuing influence of late Elizabethan canons of taste, yet, as he rightly insists, it was the authors of the mid century who established the protestant literary tradition that persisted to the Restoration and beyond.

King suggests that his book may be seen as a kind of preliminary volume to Barbara Lewalski's *Protestant Poetics and the Seventeenth-Century Religious Lyric* (1979), while admitting that her subject matter, devotional poetry, is very different from the public, propagandist, "gospelling" literature of the mid-sixteenth century. A closer parallel would seem to be William Haller's *Foxe's Book of Martyrs and the Elect Nation* (1963), though again Haller's emphasis is on the seventeenth-century development of Foxe's protestant interpretation of history. King's book is invaluable in concentrating on the literary history of the years 1547–1553, a brief but extraordinary period of literary expansion comparable to that of the 1640s.

The first part examines the antecedents of reformation literature and the immediate conditions that allowed it to flourish: the "protestantizing" of Erasmus; the great influence of John Bale's *Image of Both Churches* (written in exile at the end of Henry VIII's reign); the crucial decree of July 31, 1547 that authorized the universal reading and interpretation of the Bible and related writings; the freedom of the press made possible under Edward Seymour, Protector Somerset; the corresponding rapid increase in publication; the appearance of provincial presses (notably at Ipswich, important for its connexions with Antwerp); the patronage exercised by leading protestant laymen (especially Seymour).

The books at the centre of this literary revolution were those ordered to be used in every parish church: the Great Bible, Cranmer's Book of Homilies and Book of Common Prayer, and Erasmus's *Paraphrases* (the last given a suitably protestant colouring). Cranmer's importance has always been recognized, but King interestingly concentrates on his "book-making art". He discusses the influence not only of the printed word but also of iconography: there is an excellent account of the mythologizing of Edward as the pious protestant prince, the bearer of the Sword and the Book. It was essential for propagandists to free traditional religious and political images from their catholic associations and to establish protestant ones in their place. Hence King argues that "the problem of discriminating between true and false images furnishes the comprehensive pattern of English Reformation literature".

In the second part King explores the characteristic forms of reformation literature – gospelling poetry, drama, dialogue, prophecy, satire – and provides detailed analyses of the work of the most important authors, especially Robert Crowley and William Baldwin. The most interesting sections are those on Baldwin's complex satirical fable, *Beware the Cat*, and Crowley's editorial reinterpretation of *Piers Plowman* (in the light of Bale's *Image of Both Churches*) as a prophecy of the Reformation. King distinguishes between the gospelling manner of writers like Bale and Crowley, who denigrate classical learning, and the humanist sympathies of Baldwin; given the importance of this distinction, it is a pity that he does not devote more space to the literary and theological problems facing the protestant humanist.

Alan Sinfield's book is disappointing in this company. It does not pretend to be a work of scholarship: it is an essay on the different ways in which literature of the late sixteenth and early seventeenth centuries incorporates, examines, and sometimes exposes and rejects the contradictions inherent in protestant theology. This limited aim is not in itself an objection: Sinfield's brevity and clarity (with the exception of some overworked phrases like "cultural dislocation") could well be imitated by other critics. But the nature of the argument and the evidence adduced in its support leave a good deal to be desired.

Sinfield starts from the premise that literary critics, unlike historians, misunderstand the nature of protestantism and have given undue emphasis to the Erasmian kind of Christian humanism, because it is more benign and rational than the dominant Calvinist orthodoxy. This may have been true twenty years ago, but is it true now? Sinfield knows the importance of Lewalski's contributions to this subject; in *Protestant Poetics* she writes, "It is hardly necessary now to argue that the theological tenor of the English Church in the late sixteenth and early seventeenth centuries was firmly Protestant, even Calvinist." Sinfield is not as original as he thinks in emphasizing the centrality of Calvinism.

Further, he is wrong about the process by which Calvinism lost ground. According to him, "it collapsed under the weight of its own contradictions"; "the break up of the fragile protestant ideological hegemony" was caused by the secularist tendencies which its own contradictions provoked. The matter is much more complicated than this. The Arminian revolt against Calvinism began to take hold in England in the 1640s, especially at Cambridge, but it was not secularism that came to the fore: it was the rationalist, "benign" Christianity of the latitudinarians that became dominant in the 1660s. This Anglican version of Christianity (seen by its promoters as a return to the true religion from which neo-Augustinian Calvinism was an aberration) was just as riddled with contradictions as the Calvinism it displaced, but it survived a long time none the less. Sinfield gives the false impression in his sweeping concluding chapter, "The reformation and secular society", that by the end of the century Christianity was drastically weakened.

The literary critical parts of the book vary in quality. There is a good chapter on "Providence and tragedy", and a number of interesting comments on Sidney, but there is also much that is banal (in the treatment of heroism in Milton and Jacobean tragedy, for example). The account of the conflict between puritanism and humanism is very much oversimplified, and in the case of Spenser simply wrong; it includes the absurd statement that by the end of Book VI of *The Faerie Queene* Spenser "is disillusioned with both religion and humanism".

Isabel Rivers

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Historical psychology

The Problem of Unbelief in the Sixteenth Century: the religion of Rabelais
by Lucien Febvre
translated by Beatrice Gottlieb
Harvard University Press, £28.00
ISBN 0 674 70825 3

This is a translation of *Le problème de l'incroyance au XVI^e siècle*, which first appeared in 1942.

Febvre's aim was to refute Abel Lefranc, who had argued (in 1922) that Rabelais was an atheist, and that he was recognized as such by his contemporaries. The French historian has little difficulty in demonstrating that the religious beliefs and practices of Rabelais's giants are deeply influenced by both Erasmus and Luther and, in so far as one can deduce anything about the man by studying his novels, that Rabelais's own religious beliefs were eminently sincere.

This is important: but it would not, in itself, warrant the description "epoch-making" which has been somewhat uncritically bestowed upon Febvre's book in a standard bibliography. W. G. Moore, J. Plattard and (in an earlier study) Lefranc himself had already emphasized the close links between Rabelais's religious thought and ideas current in the early Reformation period. Since 1942, two major studies have appeared which cast much more light on Rabelais's religion: M Screech's *L'évangélisme de Rabelais* (1959) and A. J. Krailsheimer's *Rabelais and the Franciscans* (1963). The two scholars hold divergent views, but neither of them feels it necessary to pay anything more than passing attention to Febvre. Krailsheimer praises his predecessor's contribution but argues that Lefranc's arguments were not really worthy of such painstaking refutation.

Krailsheimer's judgment amply highlights the rather limited value which Febvre's study now has for the Rabelais specialist – a topic on which Beatrice Gottlieb is understandably silent in her introduction. His comment fails to do justice, however, to the wider value of Febvre's book. Many of Lefranc's arguments *are* simplistic; but they are inspired by an error which Febvre, as a professional historian, regards as "the worst of all sins, the sin which cannot be forgiven – anachronism". Febvre's impatience with his opponent often leads him to ridicule his arguments in a way which goes beyond the bounds of normal scholarly decorum, but it is a salutary experience for any one concerned with the literature and thought of the past to watch Febvre expose the many ways in which anachronism can distort our judgments. Religious practices pose a particular problem since they change from one period to another. Taste in jokes is also variable: jests which would be frowned on after the Council of Trent were perfectly acceptable before it.

Even an apparently clear word like "atheist" is misleading: Febvre shows that it was bandied about by controversialists of all opinions and used as a supreme insult, rather as "communist" is still used in some circles today. Even when it is used in a more precise sense, it can still mislead us because sixteenth-century modes of thought were not the same as ours. Du Perron's assertion that Luther was an atheist strikes us as absurd; but, in sixteenth-century terms, it was not. Theologians trained in the school of Tubal Holophernes felt that it was perfectly legitimate to make deductions from an opponent's statements and to hold him responsible for the conclusions as well as the premiss. This is why Postel felt justified in accusing Rabelais of atheism: protestantism induced people to question traditional beliefs; Rabelais had links with the Reformers; *ergo* Rabelais was an atheist . . .

Febvre is obviously influenced here by Lévy-Brühl's study of primitive thought. This is why he reminds us that "each civilization has its own mental tools" and warns us that, "as far as the men of the sixteenth century are concerned, neither their reasoning nor their requirements for proof were the same as ours".

It is here that the real value of his book lies. He demonstrates, especially in the final third of his study, that the sixteenth century was incapable of conceiving a scientifically based atheism of the kind attributed to Rabelais by Lefranc. In doing so, he analyses the *mentalité* of the sixteenth-century Frenchman in a way which is wholly typical of the *Annales* school of history, which, together with Marc Bloch, he was largely responsible for founding. He examines the extent to which religious practices dominated the waking hours of Rabelais's contemporaries, the way in which religion influenced man's life from the cradle to the grave, and the habits of thought and feeling which restricted the progress of unbelief in the Renaissance. For this reason, Febvre's study is best regarded not as a now out-dated study of Rabelais's religion, but as a seminal work on historical psychology.

James Supple

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Moral confusion

The World's Perspective: John Webster and the Jacobean drama
by Lee Bliss
Harvester Press, £22.50
ISBN 0 7108 0505 5

Recent criticism of John Webster mostly rejects Edwardian views of the dramatist as "Tussaud laureate" or as a writer of "broken-backed" tragedies in favour of an awareness of him as an alert and self-conscious manipulator of ironies and shifting perspectives, whose play-worlds deflate heroes and the notion of heroism. Lee Bliss's *The World's Perspective: John Webster and the Jacobean drama* is the latest contribution to this tradition.

Her interest is in Webster's "art of distance", in his use of the ambiguous figure of the commentator-intriguer, and in the interaction of this character and the world which refuses to conform to his beliefs. She sketches a background for such Websterian creations as Bosola and Flamineo by examining other contemporary examples of ironic tragedy and tragicomedy. This central emphasis on detached commentators, although not new, emphasizes that Webster is not himself morally confused but is rather dramatizing the moral confusion of the world he depicts: Flamineo and Cornelia for instance, mean quite different things by the moral terms they use. However Bliss's concentration on these figures does produce some strange readings of the plays. The Duchess of Malfi, who is at the centre of the only relationships in the play based on love and tenderness, is seen as a "foolish heroine" who is all too "like her brothers"; a reading which is not neutral but accepts a villains'-eye view of the central experience. Bliss does not perhaps distinguish sharply enough between the techniques of the two tragedies, between the complete relativism of *The White Devil* and *The Duchess of Malfi*, where narrative and imagery suggest that [illegible] slippery concepts.

Despite her concentration on ironies, Bliss is perhaps not prepared to accept the full extent of Webster's agnosticism. In *The White Devil* she fails to establish how we are meant to interpret the murderer Flamineo's claim that there is some "goodness" in his death, and she sees the final scene as a "traditional reassuring coda", a view which does not take account of its equation of "authority" with violence, and the attempts made by both Flamineo and Lodovico to insist that the young prince Giovanni is not free from moral blame. Her account of the ending of *The Duchess of Malfi*, too, perhaps places insufficient weight on the irony by which Bosola revenges on others a murder that he himself committed, and her view of the last moments would perhaps be modified by a reminder that the child who seems to symbolize the reestablishment of order is not in fact the true heir to the dukedom.

Bliss rightly emphasizes the mixed modes in Webster's plays as one key to their manipulation of ironies: *The Duchess of Malfi*, for instance, is seen as "enclosing comedy within tragedy". Her description of this collision of genres, however, is sometimes heavy-handed. It is illuminating to see elements of city comedy in *The White Devil*, but to see the play inhabiting "the world of farce run mad" is surely to overstate. Webster's own mocking suggestions of generic categories – the use of "comical" in *The Devil's Law-case*, the sinister use of laughter in the two tragedies – are puzzlingly neglected.

Lee Bliss's book is perhaps too long, and it has been rather overtaken by recent work on Webster's context by Nicholas Brooke, M. C. Bradbrook and others. Still, it is a useful attempt to place Webster in his period, and to reemphasize that, far from being a maverick genius directed towards chaos, he shares the desires of many of his contemporaries to dramatize a world where simple certainties, about how to live or how to write plays, were in collapse.

Jacqueline Pearson

[illegible] glish at the University of Manchester.

BOOKS

Making sense of the world

Lectures on Kant's Political Philosophy
by Hannah Arendt
edited by Ronald Beiner
Harvester Press, £16.95
ISBN 0 7108 0449 0

Hannah Arendt seems something of a lone figure in the recent history of philosophy and political thought. Of German Jewish origin she, along with a number of other fugitives from Nazism, made her home in the United States with her writings on philosophy and politics. Although a student of Karl Jaspers at Heidelberg, and a subsequent lifelong friend of that eminent psychologist and philosopher, she was the adherent of no school or creed. As with Nietzsche (with whom she has some affinities) her work defies all rigid and clear categorization. Because of this individuality and multiformity Arendt's work has aroused a wide interest, both popular and academic, which has shown no signs of abating since her death in 1975. This book dealing with Arendt's thoughts on her fellow citizen of Konigsberg, Kant, is testimony to this continuing interest.

There are three dimensions to this work, each raising distinct perspectives and problems. The first of the dimensions is that of the lectures as an aspect of Arendt's own philosophy. Ronald Beiner suggests that the lectures be regarded as the preparatory version of Arendt's study of "judgment" which was to follow her studies on "thinking" and "willing" in her projected trilogy on *The Life of Mind*. And they are no doubt a valuable source to add to the first two volumes already edited and published by Mary McCarthy. The second dimension concerns the topic of the lectures and their value as a study of Kant's political thinking. Third, the lectures are accompanied by an enthusiastic interpretive essay by the editor which presents an assessment of Arendt's treatment of judgment.

The lectures reveal Arendt to be acutely interested in judging as the aspect of our cognitive faculties which is best suited to dealing with the issues of politics. Here Arendt sees judging as a wholly contemplative activity carried out by the disinterested spectator. In her view properly formed judgments distinguish themselves by their communicability and universality, and she agrees with Kant that judgment is a talent which can be practised, not taught. She appears to be saying that such practised political judgment can retrospectively make sense of the world for us. It is difficult to say what light these lectures shed on Kant's political philosophy since Arendt claims that her concern is with the political philosophy Kant "did not write".

This unwritten political philosophy is to be found in Kant's *Critique of Judgment* which is for Arendt the unique source for a view of history through whose adoption we may regain our lost dignity. True political philosophy is, she suggests, this reflective activity. But, as Beiner points out, Kant does himself have a stab at presenting a political philosophy which is too well-elaborated to be lightly dismissed. Incidental light is thrown on this by Arendt's discussion of Kant's essay on history and *Perpetual Peace*, but insufficient to regard the lectures as an authoritative treatment of the subject.

Arendt is, in my view, on the right track in suggesting that Kant's view of reflective judgment is one important key to understanding his view of politics, but she is mistaken in suggesting this represents the most convincing aspect of his political philosophy. He is equally as convincing on the topics of justice, freedom, resistance and peace and even more convincing on the topics of contract, property and international law. It is perhaps Arendt's dislike for the idea of progress which prevents her from seeing eye to eye with Kant on these points.

Beiner's main concern in his interpretive essay is the contemplative view of human existence and politics that can be gleaned from the lectures. He sees this view as forming the most mature state in the development of Arendt's philosophy. Previously Arendt had seen a role for judgment in the activity of politics, but in the lectures comes to abandon this view in favour of the disinterested judgment of the spectator. All thought for Arendt involves the conception of a spectator for whom ideally a process of reasoning makes sense; here we have the basis for a shared measure of worth. But this shared measure is effective only retrospectively; thus, by implication, nothing in politics makes full sense at the time, only in the light of history are some of our (more exceptional) experiences vindicated. The Paris Commune, the rising in the Warsaw Ghetto, and the 1956 Hungarian uprising are three such instances which stand out for Arendt. Without questioning the worth of these experiences, Beiner wisely distances himself from Arendt's conclusion. He suggests that Arendt's reflections on political judgment might be usefully supplemented by a consideration of Aristotle's views on prudence; yet another possibility is that they be reinforced by an evaluation of Kant's concept of the moral politician. Unlike Arendt Kant appears to have seen the danger of encouraging a hiatus between sound judgment and active politics. For Kant (unlike Hegel and the later Arendt) the owl of Minerva may well take flight before dusk.

The tone of Beiner's essay is, like that of the lectures, pessimistic. This is out of keeping with Kant's critical exercise. Although predisposed to melancholy Kant leavens his foreboding and doubt with a strong measure of hope. Those wedded to the analytical style of philosophy may find little to please them in Arendt's spirited and eclectic approach, but those prepared to broaden their horizons to a more *lyrical (and tragic) style of philosophy* may find much in this book which is illuminating.

Howard Williams

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A case for dialectic

Hegel's Dialectic and its Criticism
by Michael Rosen
Cambridge University Press, £17.50
ISBN 0521 24484 6
Hegel
by Peter Singer
Oxford University Press, £7.95 and £1.75
ISBN 0 19 287565 5 and 287564 7

It is generally agreed that Hegel is difficult to read and still harder to understand, and this difficulty has been reflected in the variety of ways in which he has been interpreted. From the moment when, soon after his death, his followers split into a left and a right wing, even those who claimed to be his followers have differed about his doctrines. One of the main features of these debates has been a quarrel about the nature of the dialectic.

Michael Rosen has made an important contribution to this topic by his detailed examination of the arguments of the *Science of Logic* as well as an analysis of interpretations which differ from his own. He concludes the book with a survey of Adorno's attempt to produce a "materialist" version of the dialectic. He concludes that this attempt fails, as must all similar ones. The dialectic is inextricably linked to Idealism, for reasons which I will examine in a moment.

After an interesting introductory chapter which discusses the "craft" of philosophical interpretation, well worthy of study in its own right, Rosen turns to the main topic and opens his attack. However, the fact that he ultimately dismisses the claims of Hegelian dialectic does not mean that he does not take Hegel seriously. His conclusion, at the end of the book, is that Hegel possessed two out of the three "cardinal philosophical virtues"; he is rigorous and original. The former epithet may surprise those who associate Hegel with the denial of the law of excluded middle, but Rosen establishes his case. Unfortunately Hegel lacks the third virtue, for he is wrong, and the other two virtues ensure that his is thoroughly and consistently so. In the last resort I would pass the same judgment on Rosen's book; its rigour and originality will ensure that it will be studied by all who are interested in Hegel, but, I believe, the argument must be rejected.

Rosen claims that the dialectic is not a method which can be applied in isolation; it is an aspect of Hegel's Idealism and so only makes sense when taken in the context of the whole system. For Hegel insisted that the truth is the whole, the system itself; *hence* only *when the system* has been grasped and understood has truth been attained. As the criterion of truth is the system itself, only someone who has reached that culminating point is in a position to judge its rationality. No external criticism is possible. Hence the system must be accepted or rejected *en bloc*. Method and content are inseparable so nothing can be salvaged from the wreck; there can be no "materialist" dialectic.

The attack begins by an assault on the notion of "immanent critique". Hegel's way of dealing with previous philosophies. If this were a method external to those philosophies, then it *would be right to ask for* its justification. But Hegel meant that the only way to criticize a philosophy was by its own standards, not by anything imported from the outside. Hence the method is one of taking a doctrine seriously and of pushing its arguments to their limits, at which point the errors and inconsistencies begin to emerge. A consequence of "immanent critique" is "determinate negation". Its employment does not lead to a bare rejection of the previous philosophy, but its *aufhebung* or "sublation", the attainment of a better position which incorporates what was good in the old. In philosophy at least negation is determinate in that the only way of refuting a view is by the provision of a better one. The evidence for this is, Hegel thinks, the history of philosophy itself. We do not begin each time with a clean slate but build on the work of our predecessors. It is the unresolved tensions of an earlier view which provide the growing points for thought.

Rosen rejects the doctrines of immanent critique and determinate negation. He says: "Is the claim that immanent critique leads to positive results *itself* supposed to be the result of immanent critique? If so then it appears that Hegel's dialectic is self-supporting in an unacceptable sense. . . .". *If* the two doctrines were logical then it would appear that they needed to be established independently. But to treat them in this way is to take them abstractly. Indeed, this is the result of Rosen's view of the *Science of Logic*; he takes it to be the development of pure thought independently of any facts: "The *Logic* takes place in the purified self-transparency of the element of Thought. . . ."

Certainly the *Science of Logic* appears highly abstract, nowhere more so than at its beginning with "being" which appears to support Rosen's view. But the reason for starting with this concept was, for Hegel, that this was the point at which *philosophy had*, as a matter of historical fact, begun, as well as being a point at which most people are liable to commence their own thought. However, to say, "Being is" leads naturally to "Not-being is not". Neither being nor not-being are adequate categories to deal with the complexity of the actual world; more are needed. The development of these took place in classical Greece. In the text, Hegel seldom refers to actual philosophers; but throughout there is implicit reference to their views. In a sense we could talk of "self-development of thought" but it is one that has actually taken place in the history of philosophy, not one arbitrarily imposed by an individual philosopher.

My major criticism of Rosen is that he ignores this historical element in Hegel, the first philosopher to take history seriously. The word "history" does not even occur in the index. Rationality is, for Hegel, something that is manifested in the history of humanity; there is a close connexion between history and logic. Here one might turn, as a corrective, to a rather different book about Hegel, Singer's introduction in the "Past Masters" series. He summarizes the theme of Hegel's thought in the latter's sentence "The history of the world is none other than the progress of the consciousness of freedom."

The dialectic, Singer claims, is most easily grasped by studying the development of a society. The inadequacies within a particular form of life give rise to a new form to replace the old and solve its problems. This process is not without a human cost, as Hegel's discussion of the fate of Socrates shows. Such development is internal to the society, not imposed on by any outside force. The same process occurs in both science and philosophy, and Hegel's writings can be seen as the tracing of this process to its culmination in his own system. Rationality emerges from the material, it is not imposed from without. Here we reach "Absolute Idealism" which we may well wish to reject.

Singer's book forms an ideal introduction to Hegel; to have made so much clear in ninety pages is a remarkable feat. Also, as I have argued, it constitutes a foil to the much denser arguments of Rosen. However, the latter will continue to be studied by all those interested in Hegel even though they finally come to disagree with its main conclusion.

Anthony Manser

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"Lady of the Lake" by E. L. Glick, an illustration from "Ornate Pictorial Calligraphy" by E. A. Lupfer (Constable, £2.40).

Imposing order

Kierkegaard
by Alastair Hannay
Routledge & Kegan Paul, £14.95
ISBN 0710091907

That a volume on Kierkegaard should appear in a series which already includes works on philosophers such as Hume, Kant, Russell, Frege and Popper is more than a little surprising. For did not Kierkegaard take drastic steps to prevent the systematic ordering of his work and its being taught by academics?

Kierkegaard deliberately chose unsystematic and antisystematic titles for his works, such as *Concluding Unscientific Postscript*, *Philosophical Fragments* (or, as Professor Hannay suggests, *Philosophical Crumbs*), and *Either/Or*. His texts are mixtures of reasoning, anecdotes and parables; irony, tongue-in-cheek humour, hyperbole, and insult. And he frequently swerves off in order to re-examine the reasons for his not having married Miss Regine Olsen. On the basis of all this not a few interpreters have speculated on his sanity. Certainly, as Hannay says, Kierkegaard's prodigious literary programme did not possess "a great deal of built-in consumer appeal".

All too often, as our author sadly observes, the consequence has been that Kierkegaard has been dismissed as either not a major philosopher or even not a philosopher at all. Hannay's book is an important attempt to make amends: he believes that if we dig deep enough in the right places we can uncover a logic, a rationality, a unified progression in and an interdependence between the texts which are too often overlooked. Hannay attempts in his book to "develop" in the photographer's sense of "bringing to light a latent philosophical image which is already there" these aspects of Kierkegaard's life's work.

Hannay divides the texts into four groups which he proceeds to expound and criticize in turn: the aesthetic and pseudonymous works, such as *Either/Or*; the dialectical works, such as *Point of View*, the *Fragments* and the *Postscript*; the psychological works such as *The Concept of Dread* and *The Sickness Unto Death*; and the non-pseudonymous, moralizing, "religious productions". In these four sections the interested reader will find careful and profound critical exegesis of a great many familiar Kierkegaardian themes, such as the three stages (or levels) of life, the teleological suspension of the ethical and the subjectivity of truth, which the author strives to portray as essentially interdependent. He will also find that at several crucial points Hannay translates Kierkegaard's rather prolix and meandering reflections into quite formal propositions which he proceeds to explain and criticize. Such work contributes valuably to the clarification and understanding of difficult philosophical writing. Throughout the book as a whole Hannay attempts to link Kierkegaard's discussions with many European philosophical developments since the *Aufklärung*, in particular with Lessing, Kant (and most originally to Kant's ethical system), Feuerbach, Marx and others. Of special interest is the attempt to relate Kierkegaard to Hegel and Hegelianism where he discovers a surprising degree of affinity between the two. Also interesting is his attempt to relate Kierkegaard's thinking to that of Wittgenstein, who described Kierkegaard as "by far the most profound thinker of the last century". He draws attention to the similarities between Kierkegaard's views on the "unworldliness" of God's revelation, the "transcendence" of ethics, and the severe limitations inherent in a language framed to reflect and communicate empirical states of affairs, and some of those expressed by Wittgenstein in the *Tractatus*. Finally, many will be surprised to read of Kierkegaard's relevance for politics and society, in view of his reputation as a fanatical atomistic individualist.

Kierkegaard studies in English have been enlarged and enhanced by this book. The main critical question is whether the author has merely made explicit order, progression and system which were implicit in the texts or whether he has occasionally tended to impose these from without. Many, I suspect, will assent to the latter. Still, to be fair to Hannay, at various points he frankly concedes that in schematizing arguments "we are going beyond what [Kierkegaard] would have felt bound to commit himself upon" (page 148). Anyway, it is arguable that Kierkegaard can only be improved by a bit of sensitive and informed systematization.

This is by no means an introductory simplification of Kierkegaard for those lacking familiarity with the texts; Hannay's own style is lean, hard and economical, and the result is a tough-minded piece of scholarship which makes formidable demands upon the reader.

James Richmond

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BOOKS

Rock types

Atlas of Igneous Rocks and Their Textures
by W. S. MacKenzie, C. H. Donaldson and C. Guilford
Longman, £9.95
ISBN 0 582 30082 7
Petrography: an introduction to the study of rocks in thin sections (second edition)
by Howell Williams, Francis J. Turner and Charles M. Gilbert
Freeman, £20.95
ISBN 0 7167 1376 3

Igneous rocks, thanks to Mount St Helens and Etna, have been getting a considerable amount of public attention recently, but it has to be confessed that they are not as popular as they used to be. A hundred years ago, before the rise of the oil industry began to make it clear that most of the geologist's bread and butter was to be found in sediments, the microscopical study of igneous rocks was a highly-developed and central geological discipline. Writing from the point of view of the devotee it is thus a particular pleasure to welcome the appearance of the *Atlas of Igneous Rocks and Their Textures*, at a time when the subject needs a touch of encouragement.

The book, which is already proving to be highly popular in the teaching laboratory, contains several hundred very beautiful photomicrographs of rocks in thin sections, often in pairs to illustrate their appearance in both plane-polarized light and between crossed nicols. These are used first to illustrate common textural relations and then to illustrate standard rock types. The quality of the photographs themselves is outstanding, as is the authors' skill in preparing and selecting the actual specimens to portray the various features. Even case-hardened university students are conscious of the book's charms, and I have detected a resurgence of interest in microscopy since its appearance. Looking down the microscope and then comparing what you see with pictures in a book may seem like an unsophisticated way of teaching, but it does work. For those with only limited access to a microscope (in schools, for example) the advantages are immediate and obvious. Another possible advantage is that the authors have firmly avoided any form of genetic interpretation of what they illustrate, on the grounds of not wishing to mix fact and fiction. This is frustrating in places, because at least some of the textures are not of particularly contentious origin, and it does seem on these occasions that a simple opportunity to impart useful additional information has been missed.

The new edition of *Petrography* is a work of much broader scope, covering sedimentary and metamorphic rocks in addition to igneous rocks. Its predecessor, the first edition of 1954, has long been one of the standard work-horses of microscopy classes. Indeed, it was among the best of a number of similar books, although as a genre these are more characterized by a sense of worthiness than excitement.

This version is much expanded – largely a reflection of changing attitudes and interests within the subject rather than because many new rock-types have been discovered. Komatiite is the only brand-new rock I have *spotted*, but a new entry for banded iron formations is a similar indication of increased emphasis on the Archaean period in recent years. New entries for lamproite, mantle rocks, ignimbrites and cumulates suggest increased concern for igneous processes and the mantle, while terms like "entropy" and "free energy" show how times have changed in metamorphic studies.

Somewhat disappointingly, the subjects of porosity and permeability in sedimentary rocks receive little more attention than they did in 1954, and references to the importance of such studies in the oil industry are extremely sparse. Most of the new material, however, is of an overtly interpretative nature, which does enliven the text, even if omissions of the type I have pointed out show how extremely difficult it is to please everyone.

The most important reservation one is likely to have about a book of this type is that it is an uneasy compromise between being comprehensive and not going far enough. It has competitors which cover the same fields at a more elementary level and are therefore more readily accessible to the non-specialist, while at the same time specialist volumes exist on each of the three main subject areas. It is, however, an authoritative compromise and likely to be the best available within this limitation.

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Challenge of design

Designing for Strength: principles and practical aspects of stress analysis for engineers and students
by Peter Polak
Macmillan Press, £24.00 and £12.00
ISBN 0 333 32674 1 and 32676 8

There are good reasons for writing a book on designing for strength. The connexion between real-life problems and the material found in many books on elasticity, strength and properties of materials, and the theory of structures, is often curiously obscure to the student, and many tend to regard the subjects as dull, difficult, confusing and tedious. The contrast with reactions to other engineering subjects – for example, large sections of fluid mechanics and thermodynamics, where the applications are clear and involve an overall analysis rather than an analysis of detail – is quite marked.

Experience shows that motivation for the former subjects is to be found in the challenge of design. Design involves putting the proper material in the right places with economy, to produce an object which will be reliable in service. To do this requires a clear appreciation of the purpose of the design, the actions required to achieve that purpose, and the way in which actions flow within components and structures. The first two of these are overall considerations which correspond to a commonly-held view of design; and most students take to them readily. The third involves the detailed considerations necessary to realize a design in an effective manner, and it is when these detailed considerations are presented in a context too far removed from the design of real elements or structures that students are put off.

Theoretical, academic courses on elasticity, theory of structures and properties of materials should always run in parallel with a course on design, in the sense that word is used here, with continual cross-referencing. In that way, greater interest in all the subjects is generated, and greater benefit, both practical and intellectual, is gained. Designers can be trained who not only have expertise in calculation and the use of design codes but also a sound understanding of how structures carry and distribute loads, and those interested in theoretical work have a sound basis on which to found and develop new work.

This book is intended to cover strength calculations for general design purposes in engineering courses, but it also helps to serve the more general purpose. After a brief introduction, the book deals *first* with the basic stress forms and the test procedures which have been developed to provide the data a designer needs. This is followed by a useful chapter on stress concentrations which sets out to demonstrate how published results can be organized for general use in design.

There is then a chapter on framed structures, with a satisfying emphasis on graphical methods and a section on optimum structures, both of which encourage the development of a proper appreciation of structural forms. The author continues by considering designs involving more advanced problems in elasticity, the design of beam structures, aspects of the design of structural steelwork, and pressure vessel design. He concludes with a series of short case-studies in which failures are analysed and discussed.

This is a useful book based firmly in design, with a balanced treatment of the appropriate theoretical and experimental work. Though written in an informal and easily readable style, it sometimes becomes rather breathless and in a few places breaks down into note form. Despite, or perhaps because of these occasional lapses, the author's experience and enthusiasm for his work come across well and should serve to catch the reader's interest.

R. E. Franklin

R. E. Franklin is a university lecturer in engineering science, and a fellow of Worcester College, Oxford.

[illegible] ivory carving: on the right is a piece from Zaire and on the left a piece from the Central African [illegible] from *Ivory Crisis* by Ian Parker, with photographs by Mohamed Amin, published this week by Chatto and Windus at £14.95. Drawing on 25 years of experience in Africa, Parker proposes that it is not the traditional "villains" – poachers and ivory traders – who are responsible for the plight of elephants in many African countries. He claims that the fault lies much more with the governments of those countries where game laws are outdated and corruption is commonplace, and with inefficient and inept international conservation bodies.

Ubiquitous worms

The Natural History of Nematodes
by George O. Poinar, Jr
Prentice-Hall, £29.70
ISBN 0 13 609925 4

Nematologists are frequently reminded by others of the adage that there is only one nematode but the model comes in different sizes. Those that state this to imply that the group holds no interest for them should read *The Natural History of Nematodes*.

This elementary book explains that the fascination of nematode worms does not lie in their morphology but in their diverse modes of life and their paramount position as parasites of nearly all species of higher plants and animals. Add to this the ubiquitous marine sediment-inhabiting and soil-inhabiting forms and it is hardly surprising that some have acquired peculiar habits in achieving this variety with a simple and rather uniform structure. The examples in the book include a species with females that evert the uterus through the vulva to absorb nutrients, males that produce fertile eggs, and a parasite that introduces specific bacteria as a food source after the death of the host.

By providing a broad introduction to the group, the author hopes to encourage readers to develop a more detailed knowledge using the reading lists at the end of each chapter. Imaginative use has been made of half-tone illustrations, including examples of nematodes encapsulated in amber for up to 40 million years, various species entering, leaving or disfiguring their hosts, and a sixteenth-century illustration of a Mexican expelling parasites after eating medicinal plants. Section one of the book, on biology, considers classification, morphology and development, section two the five major groups categorized in terms of food source (microbotrophic, predaceous, and parasitism of plants, invertebrates and vertebrates), and section three the environment (vector associations, natural enemies, host-defence mechanisms, and control).

Understandably, the book is at its best when dealing with the author's main interest in nematode parasites of insects; other groups are less vividly presented. Sometimes the content almost descends to a catalogue of genera of families and too few underlying concepts are developed. For instance, the section on plant parasitic nematodes lacks a theme: here, the ability of many nematodes to adapt host cells for feeding could have been linked with an associated tendency to form swollen, sedentary females. In places material from such distinct disciplines as plant pathology and parasitology sit uneasily together, the chapters on host resistance and control being rather unsatisfactory for this reason.

Although the book is not intended for those with any previous knowledge of nematodes it does contain many points to interest them. Non-specialist readers, on the other hand, would find it very informative and useful background reading. Viewed as a replacement for *The Nematodes* by the late H. D. Crofton, now rather dated and out of print, it provides a more interesting account of the nematodes but develops a less clear understanding of their success within the limitations imposed by their simple organization.

H. J. Atkinson

H. J. Atkinson is senior lecturer in the department of pure and applied zoology at the University of Leeds.

Modern biophysics

Physics and Biology
by M. V. Volkenstein
Academic Press, £16.00
ISBN 0 12 723140 4

Professor Volkenstein aims in his book to acquaint the non-specialist with some of the fundamental features and ideas of modern biophysics and to indicate the important role played by physics in the development of this relatively new science.

His strategy is to describe in the first few chapters, those aspects of physics and chemistry that are involved in the formation of molecules, and to use these ideas in later discussion to show how polymers can have the properties needed for their biological function. Interactions of assemblies of molecules are then considered in relation to the behaviour of the cell, with particular reference to bioenergetics and replication. The last scientific section of the book is devoted to a consideration of how physics has contributed to our understanding of biological behaviour [illegible] and information theory.

It is unfortunate that some aspects of the basic treatment contain more detail than is necessary to understand the ideas which are developed later in biophysical terms. In particular, many of the equations do not add significantly to an understanding of the subject-matter and could well have been omitted, perhaps with the substitution of supplementary text. Such a modification might have increased the book's appeal to the non-mathematical reader seeking some insight into contemporary biophysics.

As the general approach of the volume, particularly in the later chapters, reflects Professor Volkenstein's research interests in the more theoretical aspects of biophysics, the book does present a rather biased view of the subject. More emphasis could have been placed on the experimental techniques which have played such an important part in the development of biophysics than is given in the somewhat cursory list at the end of chapter six.

A final chapter, "About false biophysics", contains a diatribe against pseudoscience. Although this may seem out of place in a book of this kind, its inclusion clearly reflects the author's need to argue against non-scientific approaches to the solution of biological problems. The passion with which he rejects pseudoscience suggests that he has suffered from proclamations of the exponents of this art, presumably within the Soviet Union, and is using this chapter to refute their work.

Professor Volkenstein's grammatical style, however, is rather stilted and several sentences are rather obscure. Clearly, he has not been well served by his translator, as incorrect scientific terminology is also sometimes used.

Despite my criticisms, however, there is much of interest and value to be gained from reading this book, by both those unfamiliar with the principles of modern biophysics and those active in this young, developing science. A background in physics, chemistry and biology, in parts to first-degree level, would be useful.

Michael Holwill

Michael Holwill is reader in biophysics at Queen Elizabeth College, London.

NOTICE BOARD

Grants

Universities

Durham

Mr C. D. Morris, £20,126 from the Scottish Development Department (archaeological excavation at Freswick); Mr C. D. Morris, £17,361 from the Scottish Development Department (ditto to Birsay); Professor Rosemary J. Cramp, £22,589 from Department of the Environment (Jarrow excavation); Dr N. Harris, £21,040 from the SERC (plasmatubules); Dr A. A. Gibb, £20,549 from Joseph Rowntree Charitable Trust (new enterprise development project); Dr G. J. Ramber, £21,650 from the SSRC (industrial relations); Dr Patricia Allott and Professor F. J. Coffield, £57,350 from Leverhulme Trust (family structure and youth unemployment); Professor M. J. H. Sterling, £56,270 from Transport and Road Research Laboratory (urban traffic control); Dr K. E. Turver and Dr K. J. Oxford, £34,373 from the SERC (gamma ray astronomy); Dr S. M. Scarrott, £43,805 from the SERC (CCD system for imaging polarimeter); Dr F. D. Gault, £28,269 from the SERC (starlink node); Dr S. M. Scarrott, £20,500 from the SERC (analysis of data for reflection nebulae).

Kent

Dr A. Cartwright, £1,000 from the Brewers' Society (grants to students taking diploma in alcohol counselling and consultation); Professor S. P. Davies, £38,484 from the DHSS (community care monitoring); Dr R. B. Freedom and Dr A. Lodola, £39,633 from the MRC (hepatocytes); Dr A. Lodola, £19,703 from National Kidney Research Fund (renal heterogeneity); Professor P. J. Brown and Dr R. P. A. Collinson, £131,750 from the SSRC (software tools centre); Dr T. R. Hopkins, £49,760 from the SSRC (Fortran libraries); Dr R. J. Brown, and Mr J. K. Stewart, £29,180 from the SSRC (professional relationships between field and residential social workers); Ms C. E. J. Ungerson, £17,660 from the SSRC (gender divisions and community care).

Newcastle

Dr R. K. Jordan, Dr J. H. Robinson and Dr R. F. Searle, £12,500 from Royal Society (antigen presentation in immunobiology); Dr R. K. Jordan with Professor D. A. Crouse of University of Nebraska, USA, £15,136 from US Department of Health, Education and Welfare (T-cell differentiation); Mr J. Bond, £306,234 from the DHSS (evaluation of geriatric nursing homes); Professor D. P. Roberts, £32,997 from National Fund for Research into Crippling Diseases (genetic influences in Down's syndrome); Dr R. S. Woof, £12,550 from Leverhulme Trust (*Discovery of the Lake District 1750–1850*); Dr C. R. Snow, £99,632 from the SERC (hardware/software debugging); Dr S. Openshaw and Dr C. Wymer, £12,310 from the SSRC (classification of 1981 census data); Professor P. J. Hills, £31,885 from the SERC (noise from urban railways); Professor A. G. J. Holt, £28,760 from British Telecom (digital filtering); Professor R. N. Parkins, £35,700 from American Gas Association (stress corrosion in buried pipelines); Professor J. B. Caldwell, £14,736 from Department of Industry (risk assessment).

An anonymous 1815 pastel portrait of Simón Bólivar, one of the leaders of the Latin American independence movement in the early nineteenth century. His part in the independence of Colombia, Venezuela, Ecuador, Bolivia and Peru is celebrated in an exhibition "Simón Bólivar and the Independence of Latin America" open throughout the summer at Canning House, Belgrave Square, London SW1.

Salford

Dr P. F. Thomason, £50,137 from the SERC (fretting fatigue); Professor T. R. Crossley, £50,000 from the SERC (teaching company scheme with GEC Turbine Generators Ltd); Professor E. Wyn-Jones and Mr J. Gormally, £29,133 from Unilever UK Central Resources Ltd (colloid chemistry); Professor J. O. Gray, £31,450 from the SERC CAD of nonlinear control systems); Professor B. Yates, £33,228 from the SERC and North Western Universities Consortium for Marine Technology (reinforced plastics in deep sea environment); Dr S. R. Edgell and Mr V. W. Duke, £18,490 from the SSRC (changes in political effects of expenditure cuts).

Southampton

Dr J. Bradshaw, £20,057 from the ARC (agricultural pests); Professor G. Luckhurst and Dr Sluccin, £18,450 from the SERC (liquid crystals); Dr D. Tildesley, £18,300 from the SERC (linear molecules); Dr A. J. McMullen, £120,000 from the Wolfson Foundation (mosquito control); Dr J. Evans, £38,498 from the SERC (transition metal clusters); Dr R. H. Dean and Dr M. Coe, £12,630 from the SERC (Zebra telescope); Dr D. Ramsden, £14,600 from SERC Rutherford laboratory (model cryoblast system); Dr A. Ferguson, £67,810 from the SERC (laser spectroscopy); Dr D. Ramsden and Dr R. H. Dean, £109,496 from the SERC (hard X-ray astronomy); Dr D. Ramsden, £37,920 from Rutherford Laboratories (balloon-borne cryogenics gas replenishment system); Dr P. Taylor, £21,599 from the Ministry of Defence (rotor derivatives research); Dr R. A. East, £23,444 from the Ministry of Defence (stability at high mach speeds); Professor K. Bray, £19,905 from the USAF (Dump combustors); Dr D. Cartwright, £24,565 from the SERC (crack growth in riveted structures); Professor G. Chadwick, £58,900 from the SERC (high pressure die casting of aluminium alloys); Dr M. MacDonald, £31,199 from the TRRL (saturation flows at traffic signals); Dr N. C. Lost, £56,060 from the SERC (cone penetrometers); Dr B. A. Carré, £41,426 from the Ministry of Defence (theorem checking); Mr T. Williams, £153,510 from the TRRL (prevention of accidents to elderly pedestrians); Professor P. Kelly and Mr P. Farley, £202,448 from the Health Education Council (health education project); Professor P. Fordham, £34,984 from Home Office (evaluation of educational programme in remand centres); Dr D. Cooper, £65,688 from the Ministry of Defence (information/decision making); Dr A. Ulph and Dr D. Ulph, £10,286 from the SERC (crude oil market); Professor C. Pritchard, £45,050 from the British Library (family studies); Professor W. E. Waters, £33,000 from the British Library (research information needs of community medicine); Dr C. R. Lowe, £28,700 from the SERC (new biosensor devices); Dr R. J. Walker, £44,272 from the MRC (peptides); Professor M. Akhtar, £36,000 from Ulverscroft Foundation (biochemistry of vision).

Courses

The Royal Society of Arts examination board has finished and waits for ratification of a new certificate and diploma in drama and education. Two meetings will be held to introduce the new syllabuses more fully: in London on July 7 and in Manchester on July 15. Details from Wendy Riley, RSA, John Adam Street, London WC2N 6EZ.

Appointments

Universities

East Anglia

Readership: Dr O. J. Seddon (development studies).

London

Titular professorships: Dr Denys Brunsden (geography – King's College); Diana K. Henry (histopathology – Westminster Medical School); Dr Robert M. Hill (physics – Chelsea College); Dr Anthony D. Hoyes (neuroanatomy – St Mary's Hospital Medical School); Dr M. Hobsley (surgery – Middlesex Hospital Medical School); Howard S. Jacobs (reproductive endocrinology – Middlesex Hospital Medical School); Julien T. Silverstone (clinical psychopharmacology – St Bartholomew's Medical School); Jeffrey L. H. O'Riordan (metabolic medicine – Middlesex Hospital Medical School); Dr Frank T. Smith (applied mathematics – Imperial College); Joan F. Silva (chemical pathology – Westminster Medical School).

Open University programmes June 18 to June 24

Saturday June 18

BBC2

6.25 Evolution. The Evolution of Breeding Systems (S364; prog 12)

6.50* Policies, People and Administration. The MP's Surgery (D336; prog 1)

7.15 Statistics: an Interdisciplinary Approach. Correlation and an Application (MDT241; prog 5)

7.40 Social Psychology. Analysing Interaction, 1 (D305; prog 3)

[illegible]

23.30 [illegible] Earth Science. The Dalradian of Banffshire (S336; prog 10

23.55 Social Work, Community Work and Society. Advocacy (DE206; prog 7)

00.20 Society, Education and the State. The Case of the Missing Skills (E353; prog 5)

RADIO 3 (VHF)

6.15 Twentieth Century Poetry. F. R. Leavis and New Bearings in English Poetry (A306; prog 9)

6.35 Industrial Relations. The Minister's Role in [illegible]

[illegible]

Sunday June 19

[illegible]

Monday June 20

[illegible]

Tuesday June 21

[illegible]

Wednesday June 22

[illegible]

Thursday June 23

[illegible]

Friday June 24

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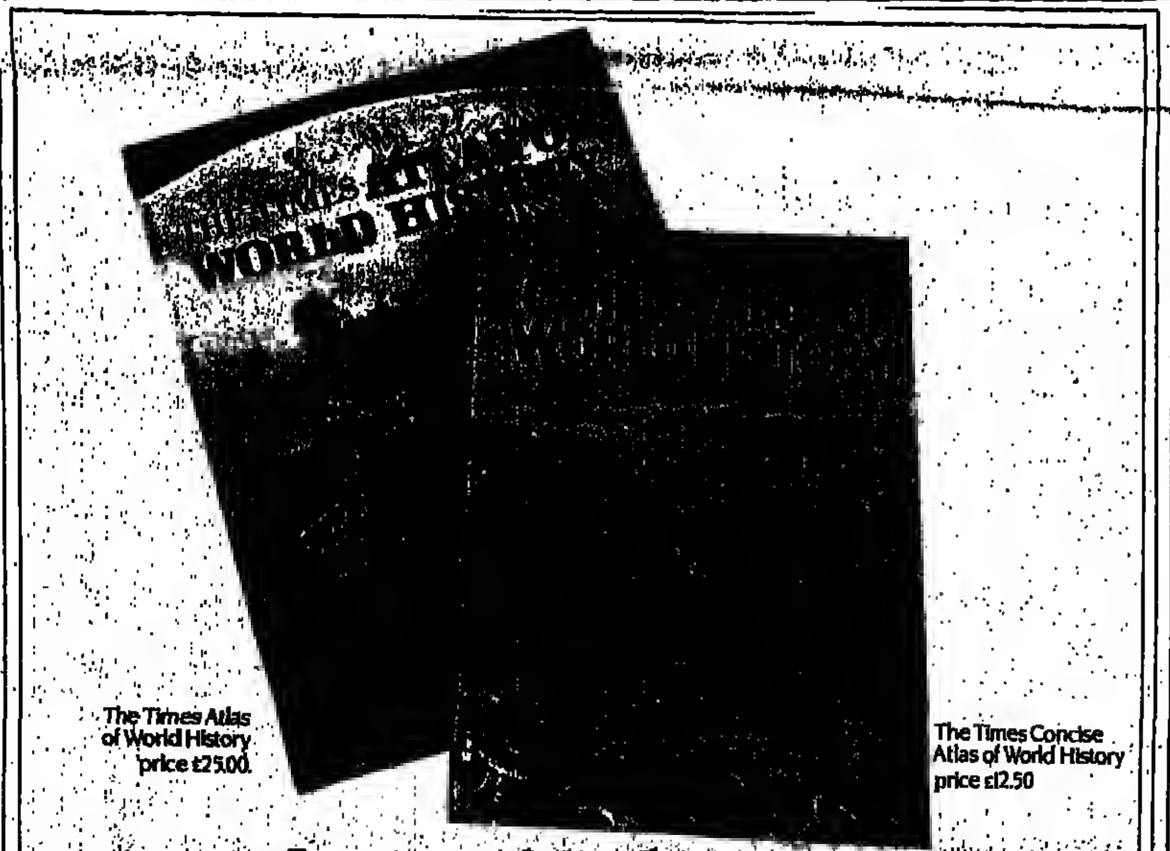


CLASSIFIED ADVERTISEMENTS

Universities

The University of New South Wales

RECTOR

University College
Australian Defence Force Academy
Canberra, Australia

The University has entered into an agreement with the Commonwealth of Australia to establish a College of the University within the Australian Defence Force Academy in Canberra. The Academy is scheduled to open in 1986. The essential purpose of the Academy is to educate and train potential officers of the three Services for the Australian Defence Force.

Applications for appointment are invited from persons with appropriate qualifications and extensive academic and administrative experience, preferably in a tertiary educational institution, for appointment to the position of Rector. The Rector will be the chief executive officer of the College and will be responsible to the Vice-Chancellor for the management and supervision of its academic, financial and administrative activities. He or she will work in close association with the Commandant of the Academy.

It is envisaged that the Rector designate will take up duty early in 1984 and that the appointment will be held initially for a period of seven years and, subject to mutual agreement, may be renewed. Total remuneration including entertainment allowance will be $A53,413 per annum.

The University reserves the right to fill any position by invitation.

For full information about the position, conditions of employment and method of application write to the Secretary General, Association of Commonwealth Universities (Appts), 36 Gordon Square, London WC1H 0PF.

Applications close 1st August, 1983.

Equality of employment opportunity is University policy.

University College of Swansea

Research Studentships

Applications are invited from suitably recently qualified graduates, or those expected to graduate shortly, for research studentships tenable in each of the following Departments of this University College: English, Romance Studies (French), Russian, History (Medieval), Politics, Philosophy, Sociology, Education, Statistics, Physics, Chemistry, Royal Society Research Unit, Zoology, Genetics, Biochemistry, Metallurgy, Civil Engineering, Electrical Engineering, Management Science and jointly between Civil Engineering and Electrical Engineering.

The research studentships, which are tenable from the beginning of the Session 1983/84 and are of the same value as studentships awarded by Research Councils or the DES plus tuition fees, will be under the supervision of [illegible] of the above listed departments.

Further particulars can be obtained from the Head of the Department concerned or the Senior Assistant Registrar (Academic), University College of Swansea, Singleton Park, Swansea SA2 8PP.

Principal

The Institute is seeking a Principal to take up appointment by the Autumn of 1984. The Principal is the Institute's chief academic and administrative officer, and leads in the formulation of academic and other policies for the future development of the Institute. The Institute is independently incorporated by Royal Charter and receives its grant directly from the University Grants Committee. It is also the Faculty of Technology in the University of Manchester. Currently it has, in 21 departments, approximately 4,500 full-time students, 420 members of the academic staff, including 47 Professors, and 1,400 members of the non-teaching staff.

The Chairman of the Council, F. A. Russell, JP, MBA, invites interested persons, who believe they could offer appropriate qualifications and experience, to communicate with him under private cover, when further particulars of the appointment will be supplied. Correspondence should be addressed to him, c/o The Registrar, UMIST, PO Box 88, Manchester M60 1QD. The Institute reserves the right to invite candidates for the Principalship.

UMIST
The University of Manchester Institute of Science and Technology

BRUNEL UNIVERSITY

Director of Continuing Education

Applications are invited for the newly-created post of Director and Professor of Continuing Education. He or she will be responsible for the development and expansion of the University's Continuing Education Programme and will have to build a department from scratch.

At present, the University's efforts in this field are organised by individual departments. The new Director will take responsibility for the courses run by those departments and develop new courses; using as far as possible the services of existing academic staff. Enthusiasm and commitment are vital, but must be matched by experience as a teacher and researcher, together with previous involvement at a senior level in a university department of Continuing or Adult Education. It is likely that the new Director's academic background will be scientific or technological.

The salary will be within the professorial range, minimum £17,275 per annum, plus £1,186 per annum London Allowance, with USS benefits.

Further particulars from the Personnel Secretary, Brunel University, Uxbridge, Middlesex UB8 3PH, or telephone Uxbridge 37188, Ext. 49.

Closing date for applications is 8th July, 1983.

University of Swaziland

LECTURER/SENIOR LECTURER in SOIL SCIENCE

Applications are invited from suitably qualified candidates for the post of Lecturer/Senior Lecturer in Soil Science in the Crop Production Department. The successful candidate will have a Master's degree in Soil Science. Preference will be given to candidates who hold Ph.D degrees and have had teaching experience in the subject at University level.

The successful candidate will be expected to teach interalia in the following courses:

1. Soil Genesis. 2. Classification and Survey. 3. Soil Fertility. 4. Crop nutrition and Fertilizer use. 5. Management of Tropical and Sub-tropical soils.

He/She will also be expected to participate in the development of the Department.

Salary Scale: Lecturer: E8480 – E12060, Senior Lecturer: E12060 – E13680 (£1 sterling = E1.72428). Entry point on both scales based on qualifications and experience.

Local candidates: Permanent and pensionable terms of service after successful completion of two years on probation. Expatriate candidates: Short-term contracts of two years; 25% gratuity for the first two years and 27½% in the second two years; 10% inducement allowance; education allowance; accommodation at reasonable rental; travelling expenses for appointee and dependent children not over the age of 19 on appointment and normal termination; biennial leave. Detailed applications (3 copies) including a curriculum vitae, copies of academic certificates, the names and addresses [illegible]

University of The West Indies
Trinidad

SENIOR LECTURER/LECTURER

Applications are invited from suitably qualified candidates for the post of Senior Lecturer/Lecturer in Telecommunications, Wave Propagation, Microwave Antenna in the Department of Electrical Engineering at the U.W.I., St. Augustine, Trinidad, W.I. The appointee will be responsible for the leadership and guidance of the undergraduate and postgraduate programmes in the area specified within the Department of Electrical Engineering, and will be expected to teach, conduct research and supervise postgraduate students in his/her area of competence.

Salary Scales: Senior Lecturer – TT$69,180 – TT$90,168; Lecturer – TT$54,708 – TT$77,904; (£1 sterling = TT$3.8472).

FSSU. Unfurnished accommodation if available at 10% furnished accommodation at 12½% or housing allowance of 20% of pensionable salary. Study and Travel Grant. Up to five (5) full economy passages on appointment and on normal termination. Detailed applications giving qualifications and experience and naming three (3) referees to Secretary, U.W.I., St. Augustine, Trinidad, W.I. Applicants resident in the UK should also send one (1) copy to the Overseas Educational Appointments Department, The British Council, 90/91 Tottenham Court Road, London, W1P 0DT quoting reference U86/83. Further details are available from either source.

UNIVERSITY OF EAST ANGLIA
Norwich

TEMPORARY POST IN ECONOMICS

Applications are invited for a temporary appointment in Economics within the School of Economic and Social Studies for the period 1st September, 1983 to 31st August, 1984. The appointment will be at an appropriate grade on the academic staff salary structure, with preference being given to candidates for a visiting professorial or Reader/Senior Lecturer level appointment, with teaching and research interests in macro-economics, econometrics and international economics.

Applications (*three copies*) which should include a full curriculum vitae, including exact date of birth, together with the names and addresses of three persons to whom reference may be made, should be lodged with the Establishment Officer, University of East Anglia, Norwich NR4 7TJ, from whom further particulars may be obtained, not later than 24th June, 1983. No forms of application are issued.

LOUGHBOROUGH UNIVERSITY OF TECHNOLOGY

Lecturer in Regional Planning

Applications are invited from honours graduates or the equivalent, for the post of LECTURER in applied regional planning in the Department of Transport Technology. Qualifications and experience in urban or regional planning with an interest in quantitative methods, would be an advantage.

Salary within the scale £7,190 to £14,125. The appointment, which is for three years in the first instance, will be made in the lower half of the scale. Further particulars and application form from Paul Johnson, Establishment Officer, ref: 83/20 TT.

Loughborough Leicestershire

The University College of Wales Aberystwyth

LECTURER IN SPECIAL EDUCATIONAL NEEDS

[illegible]

University of Liverpool
Department of Mechanical Engineering

LECTURER

[illegible]

University of Oxford
Merton College

JUNIOR RESEARCH FELLOWSHIPS AND SENIOR SCHOLARSHIPS 1983

[illegible]

University of Edinburgh

TEMPORARY LECTURESHIP IN EUROPEAN COMMUNITY LAW

[illegible]

University of the West Indies
Trinidad

SENIOR LECTURER/LECTURER

[illegible]

Universities continued

Applications are invited for the following posts, for which applications close on the dates shown. SALARIES (unless otherwise stated) are as follows: Professor $A48,977; Associate Professor $A39,665; Senior Fellow $A35,077–$A40,888; Senior Research Fellow $A31,332–$A37,373; Fellow $A28,146–$A35,031; Research Fellow $A22,430–$A29,467; Postdoctoral Fellow $A19,333–$A22,146; Senior Lecturer $A30,098–$A35,077; Lecturer $A22,430–$A29,467. Further details and application procedure may be obtained from The Association of Commonwealth Universities (Appts), 36 Gordon Square, London WC1H 0PF unless otherwise stated.

The University of Melbourne
DIRECTOR OF THE INSTITUTE OF APPLIED ECONOMIC AND SOCIAL RESEARCH

Applications are invited from persons of distinction in economics and with appropriate research experience for the position of Director of the Institute of Applied Economic and Social Research. The appointee will have an initial term as Director of seven years and will be eligible for re-appointment. The Director will be appointed a Professor of the University.
8 August 1983

University of Queensland
CHAIR OF POLITICAL

Applications are invited from distinguished scholars for the position of Professor of Political Science in the Department of Government which is responsible for teaching in Political Science, Public Administration and Journalism. The Department offers undergraduate units in the following areas of political science: Australian politics, comparative government including the politics of Asia, USA, USSR and Europe; international relations, political theory and research methods – as well as in public administration and public policy. The postgraduate curriculum includes master's degrees and doctorates by thesis, and coursework master's degrees in public administration and Asian government. Applicants should indicate their current area(s) of interest and give details of past research.
31 July 1983

The University of Sydney
ASSOCIATE PROFESSOR OF SOCIAL WORK (SOCIAL POLICY)

The responsibilities of an Associate Professor would be primarily to organise the social policy teaching of the Department at undergraduate and postgraduate levels and to take a leading role in the development of research projects in social policy areas.

It is expected that the successful applicant will have expertise in Social Policy in general or Australian Social Welfare in particular. The Department emphasises the interdependence of social policy and social work and teaches sociology courses to Arts and Social Studies students. Qualifications in Social Work and/or Sociology would be advantageous.

The University reserves the right not to proceed with any appointment for financial or other reasons.
14 July 1983

The Flinders University of South Australia
RESEARCH FELLOW – NATIONAL INSTITUTE OF LABOUR STUDIES
(Two Positions)

Applications are invited from suitably qualified economists.

The appointees will be expected to take leading roles in research projects in the areas of principal research interest of the Institute and to undertake such other research, advisory and consulting activities as the Director may determine. The principal research interests of the Institute are wages and fringe benefits, employment and unemployment, and industrial relations and worker satisfaction. The appointees will be expected to publish a significant volume of their research output, and in general to develop national reputations in labour studies.

The successful applicant would normally be expected to hold a higher degree and have relevant research experience. Appointment is available, in the first instance, for a period of up to two years. Secondment from another organisation is acceptable. Informal enquiries may be directed to the Director of the Institute, Professor R. J. Blandy. In the University Salary $A19,333–$A29,467.
15 July 1983

The University of Adelaide
LIMITED TERM LECTURER/SENIOR LECTURER IN MECHANICAL ENGINEERING
(S8562)

The appointee will be responsible for components of the Mechanical Engineering Design course up to final year Honours and Master's degree level; involvement in the Department's research and consulting work will be expected. Applicants should have had considerable industrial experience, preferably with a background of solid mechanics, CAD/CAM and at least one other major area of engineering science.

This position, open to both men and women, is available for three years from the date of appointment in 1983.

Details of the duties envisaged for the position may be obtained from the Chairman of the Department, Dr I. M. Pickles.

Further information about the general conditions of all appointments may be obtained from the Personnel Manager of the University.

Applications, in duplicate, quoting reference number and giving full personal particulars, academic record, details of experience, and the names and addresses of three referees should be sent to the Personnel Manager of the University of Adelaide, GPO Box 498, Adelaide, South Australia 5001 (telex: UNIVAD AA89141).

The University reserves the right not to make an appointment or to appoint by invitation.
29 July 1983

The University of New England
LECTURER DEPARTMENT OF BIOCHEMISTRY AND NUTRITION

The appointee will participate in teaching general biochemistry at second and third year level and will be responsible for third year teaching in plant biochemistry. The appointee will be expected to actively undertake research and postgraduate student supervision, preferably in plant biochemistry or an associated field. A PhD and relevant postdoctoral research are required. Experience at tertiary-level teaching would be an advantage.

Informal enquiries may be made to Associate Professor R. B. Cumming, Department of Biochemistry and Nutrition, telephone (067) 732510.

The appointment will be to the permanent staff but the University reserves the right to make the appointment probationary where it considers this appropriate.

Other conditions include superannuation, assistance with travel and removal expenses and with buying or building a house in Armidale.

Applications including the names and addresses of three referees and stating position no. 441 should be sent to the Staff Officer, University of New England, Armidale, NSW 2351, Australia, prior to the closing date. Applicants should forward a copy of this advertisement to their referees and ask them to send their reports direct to the Staff Officer, Mr S. O. Turner, marking their envelopes 'Private and Confidential' and quoting the position number, before the closing date so as to expedite the appointment process.
29 July 1983

The Australian National University
Research School of Pacific Studies

FELLOW/SENIOR FELLOW DEPARTMENT OF ECONOMICS

The Department is concerned with international economics and with the economics of developing countries in the Asia-Pacific region. For this post an established scholar with a proven record of publications, especially in theory, is sought. Experience of applied work in fields within the Department's scope would also be desirable.
15 September 1983

POSTDOCTORAL FELLOW/RESEARCH FELLOW/SENIOR RESEARCH FELLOW DEPARTMENT OF ECONOMICS

The Department is concerned with the economics of developing countries in the Asia-Pacific region and with international economics. For this post it is seeking a scholar who will work primarily on the Indonesian economy. In the case of appointment to Research Fellow or Senior Research Fellow the appointee must have a proven record of publications. The position is available from January 1984.
19 August 1983

POSTDOCTORAL FELLOW/RESEARCH FELLOW/SENIOR RESEARCH FELLOW DEPARTMENT OF HUMAN GEOGRAPHY
(Two positions)

Two positions will become available in July 1984. They may be filled at any of the above levels. Applications will be considered from suitably qualified geographers to work in any area of Human Geography relevant to the research programme of the Department on the geography of economic and social change in Southeast and East Asia, and the Island Pacific. It is, however, hoped that one position can be filled in an area directly related to the School's programme on 'The Causes and Consequences of Industrialisation in Southeast Asia and the Pacific', and that one appointee will work mainly in Southeast Asia and the other in the Pacific. Field experience in a Third World country would be

Appointment at Research Fellow or Senior Research Fellow level is expected to be for three years with possible extension to five years. Appointment at Postdoctoral Fellow level will be for one or two years. Applicants will, however, be welcomed from those able to obtain leave of absence from their own institutions to take up a position on secondment, in order to pursue some definite programme of research in the above areas for two years.

Inquirers who seek more specific additional information should write to the Head of Department, Professor H. C. Brookfield, or phone (062) 492234, telex: SOPAC AA62694.
19 August 1983

SENIOR RESEARCH FELLOW & HEAD CONTEMPORARY CHINA CENTRE

Applicants should have a substantial background in research on post-1949 China and a record of extensive publication. Preference may be given to those with qualifications in the social sciences, especially in the field of politics, economics or sociology. Special emphasis will be placed on the capacity to provide intellectual leadership and to initiate and co-ordinate research on contemporary China within the Centre and the University.

Appointment will be for a period of five years initially, with the prospect of extension, after review, to a total of seven years.
19 August 1983

Appointment, unless otherwise stated, will be: Senior Fellow/Fellow for five years in the first instance, with the possibility of extension, after review, to retiring age; Senior Research Fellow/Research Fellow normally up to three years with the possibility of extension to maximum of five years; Postdoctoral Fellow normally two years.

Grants are provided towards travel and removal. Assistance towards housing is given to an appointee from outside Canberra. Superannuation benefits are available for applicants who are eligible to contribute. The University reserves the right not to make an appointment, or to make an appointment by invitation at any time.

The University of Western Australia, Perth
LECTURER/SENIOR LECTURER IN ANATOMY AND HUMAN BIOLOGY

Applications are invited for appointment for a period of five years in the first instance with some prospect of renewal. The post will be available from early September 1983. Applicants will be expected to have a higher degree, or appropriate professional qualification, and to have teaching and research experience. Preference will be given to neuroanatomists, with a strong research interest in the neurosciences and a medical qualification. The appointee would also be expected to teach in at least one other area within the Department.

The Department has a broad range of interests, including human morphology, neurobiology, cytology and histology, reproductive biology, human genetics, evolution and human ecology. Both medical and science students are taught within the Department, which has well developed programs for honours and postgraduate students. The Department's facilities include electron microscopy, image analysis and tissue culture. Further details may be obtained from the Head of Department.

Benefits include superannuation, fares to Perth for appointee and dependant family, removal allowance, study leave and long service leave and housing loan scheme. Conditions of appointment will be specified in any offer of appointment which may result from this advertisement.

Applications in duplicate stating full personal particulars, qualifications, experience and the names and addresses of three referees should reach the Staffing Officer, University of Western Australia, Nedlands, Western Australia 6009, by *16th July 1983.*

La Trobe University, Melbourne
LECTURER IN RELIGIOUS STUDIES – FIXED TERM
Department of History School of Humanities

Successful appointee will co-ordinate and teach in a first year introductory History of Religions unit covering various religious traditions. Expertise in one tradition with some experience in others, and an interest in multi-disciplinary approaches desirable. Appointment four years from early 1984.
22 July 1983

Griffith University, Brisbane
LECTURER – CENTRE FOR THE ADVANCEMENT OF LEARNING AND TEACHING
(Tenurable)

The Centre's major activities involve working with the academic staff in the Schools of the University on design and evaluation of the University's own curriculum. In addition the staff in the Centre assist the University to design and operate its course approval and course review procedures.
8 July 1983

LECTURERS SCHOOL OF HUMANITIES
(continuing appointments)

SOCIAL ANTHROPOLOGY

Social Anthropology (with a major interest in the study of Mediterranean and/or Latin American societies).

AUSTRALIAN SOCIAL HISTORY
AUSTRALIAN INTELLECTUAL AND CULTURAL HISTORY
SOCIOLOGY

Australian Social History (with a major interest in the study of Australian society).

The appointees will contribute to teaching and course development work in the School of Humanities multidisciplinary degree programmes and pursue appropriate research. The positions are budgeted from January 1984.
8 July 1983

The University of Manchester
Department of Near Eastern Studies
TEMPORARY LECTURER IN ARABIC LANGUAGE AND LITERATURE

Applications are invited for the above post, tenable for twelve months from October 1st, 1983. The person appointed will be expected to teach Arabic Language at undergraduate level and should preferably have interest also in some aspect of Arabic Literature. Salary within the range £7,190–£8,530 p.a. Superannuation. Further particulars and application forms (returnable by July 8th) from the Registrar, The University, Manchester M13 9PL. Quote ref. 107/83/THES. HI

University College of Wales Aberystwyth
Department of Chemistry
LECTURER

Applications are invited from suitably qualified and experienced persons for the post of Lecturer in Organic Chemistry tenable from 1 October, 1983 or as soon as possible thereafter.

Salary on the Scale for Lecturers £7,190–£14,125 per annum.

Further particulars and application forms can be obtained from the Registrar (Staffing Office) The University College of Wales, Old College, King Street, Aberystwyth, SY23 2AX. Tel: (0970) 3177 Ext. 201. Closing date for applications, Friday 8th July, 1983. HI

THE UNIVERSITY COLLEGE OF WALES ABERYSTWYTH
DEPARTMENT OF GEOLOGY
GEOPHYSICS
POSTGRADUATE RESEARCH ASSISTANTS
In Electrical Methods of Mineral Exploration

Applications are invited for two postgraduate research assistants to join a team working under EEC contract no. MSM 058 UK (H), to develop new complex resistivity methods for mineral exploration. The initial work will be concerned with detailed field studies in areas of known and drilled mineralisation in Wales. The field work will involve measurements of impedance and phase shift over a wide frequency range for the purpose of defining induced polarization and electromagnetic induction effects which may be used for the location of, and discrimination between, different kinds of concealed mineral deposits. Interest in field work, electrical methods of mineral exploration, computer analysis of data and computer modelling of pseudosection electrical data is essential. There will be opportunities for the wider application of the processing techniques and it may be possible for suitable candidates to register for a higher degree. Salary within the 1B Range for Research and Analogous Staff £6,310 to £7,190 per annum. Duties to commence as soon as possible.

Application forms and further particulars can be obtained from the Registrar (Staffing Office), The University College of Wales, Old College, King Street, Aberystwyth SY23 2AX. Tel: 0970 3177, Ext. 207. Closing date for applications Friday, 15 July 1983.

University of the West Indies Trinidad

Applications are invited from suitably qualified candidates for the following posts in the School of Education:

PROFESSOR OF EDUCATIONAL PSYCHOLOGY

To teach Educational Psychology and Research Methods including statistics to higher degree level and conduct research connected with the discipline.

SENIOR LECTURER/LECTURER IN PHILOSOPHY OF EDUCATION

Appointee required to teach in one other foundation area (Sociology, Psychology of Education) or to prepare teachers to teach one of the subjects in the School curriculum.

LECTURER/ASSISTANT LECTURER (3 posts)

Teaching of Mathematics with experience in Tests and Measurement and in the pre-service and in-service training of teachers especially at primary level.

LECTURER/ASSISTANT LECTURER (2 posts)

Teaching of Reading with postgraduate qualifications in the subject. Preference will be given to those familiar with Caribbean Language problems and with curriculum development expertise in reading.

SENIOR LECTURER/LECTURER EDUCATIONAL ADMINISTRATION (1 post)

RESEARCH FELLOW/JUNIOR RESEARCH FELLOW (1 post)

Teaching of Reading able to research in the diagnosis and remedy of reading problems. Familiarity with Caribbean language problems desirable.

Salary scales: 1983/84 Professor: TT$81788 – TT$111372, Senior Lecturer/Senior Research Fellow: TT$90168, Lecturer/Research Fellow: TT$54708 – TT$77604, Assistant Lecturer/Junior Research Fellow: TT$45480 – TT$49296 (£1 sterling = TT$3.8472).

FSSU Unfurnished accommodation at a rental of 10% of salary or furnished at 12½% or Housing Allowance of 20% of pensionable salary. Study and Travel Grant. Up to five (5) full passages (at approved rates) on appointment and on normal termination. Detailed applications (three (3) copies) giving full particulars of qualifications and experience, date of birth, marital status and the names and addresses of three referees should be sent as soon as possible to the Secretary, University of the West Indies, St. Augustine, Trinidad. Applicants resident in the UK should also send one (1) copy to Overseas Educational Appointments Department, The British Council, 90/91 Tottenham Court Road, London W1P 0DT quoting reference U80–U91/83. Further details available from either address. HI

University of The West Indies Trinidad
WORKSHOP ENGINEER

Applications are invited from suitably qualified candidates for the post of Workshop Engineer in the Faculty of Engineering, U.W.I. St. Augustine, Trinidad, W.I. The successful candidate should have at least a B.Sc in Mechanical Engineering from a recognized institution plus at least five years experience in a supervisory position in Design, Maintenance, Workshop Supervision, Inventory Control and Membership of Professional Institution. The ability to teach at both the degree and technician levels as well as an interest in Research and Development are essential.

Salary Scale: Senior Lecturer – TT$69,180 to TT$90,168; Lecturer – TT$54,708 to TT$77,604. (£1 sterling = TT$3.8472).

FSSU Unfurnished accommodation if available at 10% or furnished accommodation at 12½% or housing allowance of 20% of pensionable salary. Up to five (5) full economy passages on appointment and on normal termination. Study and Travel Grant. Detailed applications giving qualifications and experience and naming three (3) referees to the Secretary, U.W.I. St. Augustine, Trinidad, W.I. Applicants resident in the UK should also send one (1) copy to the Overseas Educational Appointments Department, The British Council, 90/91 Tottenham Court Road, London, W1P 0DT quoting reference U89/83. Further details available from either source. HI

The Papua New Guinea University of Technology
Department of Accountancy and Business Studies
LECTURER/SENIOR LECTURER IN ACCOUNTING

The Department offers Bachelor of Commerce degrees in Accounting, Management and Computing. The present student body within the Department numbers over 300, with a full-time academic staff establishment of 22. Fully equipped laboratories and computer facilities are available.

Applications are invited for positions of: Lecturer/Senior Lecturer in Accounting.

Minimum qualifications would be a suitable academic qualification in areas related to accounting and a recognized professional accounting qualification, together with some experience in tertiary teaching. The successful applicant will need to be able to demonstrate special interest/expertise in at least two of the following, financial and management accounting, auditing, taxation or government accounting.

For appointment at the senior level, extensive industrial/commercial experience and/or appropriate lecturing experience is required.

Working familiarity with computer applications for relevant teaching and research purposes would be desirable. Teaching experience in third world country would also be an advantage.

Successful applicants would be expected to provide academic leadership in their areas of speciality and to play a leading role in the development of accountancy studies in the degree program.

Salary: Lecturer K16,920 – K17,810 p.a., Senior Lecturer K19,720 p.a. (K1 = Stg 0.7232 approx.). Appointment level will depend upon qualifications and experience.

Initial contract period is for approximately 3 years. Other benefits include a gratuity of 24% taxed at 2%. Appointment and repatriation fares, leave fares for the staff member and family after 18 months of service, settling-in and settling-out allowances, six weeks paid leave per year, education fares and assistance towards school fees, free housing, salary protection plan and medical benefit schemes are available.

Detailed applications (two copies) with curriculum vitae together with the names and addresses of three referees and indicating earliest availability to take up appointment should be received by the Registrar, Papua New Guinea University of Technology, P O Box 793, Lae, Papua New Guinea, by 8 July 1983.

Applicants resident in the United Kingdom should also send one copy to Association of Commonwealth Universities (Appts), 36 Gordon Square, London WC1H 0PF, from whom further general information may be obtained. HI

University of the West Indies Trinidad
PROFESSOR OF STATISTICS
PROFESSOR OF COMPUTER SCIENCE

Applications are invited from suitably qualified candidates for the following posts in the Department of Mathematics, U.W.I. St. Augustine, Trinidad, W.I.

1. Professor of Statistics – The appointee will be required to teach at undergraduate and postgraduate levels to students in the Faculties of Natural Sciences and Arts & General Studies. He/She will also be expected to teach at the undergraduate level in the Faculty of Engineering, and to contribute to the development of Statistics in the Department. A candidate with a feeling for Applied Statistics would be an asset to the Department.

2. Professor of Computer Science – The appointee would, in addition to the teaching and research commitments of the post, be expected to contribute to the development of a Department of Computer Science.

Salary Scale: TT$91,788 – TT$111,372. (£1 sterling = TT$3.8472).

FSSU Unfurnished accommodation if available at 10% or furnished accommodation at 12½% or housing allowance of 20% of pensionable salary. Up to five (5) full economy passages on appointment and on normal termination. Study and Travel Grant. Detailed applications giving qualifications and experience and naming three (3) referees to the Secretary, U.W.I. St. Augustine, Trinidad, W.I. Applicants resident in the UK should also send one copy to the Overseas Educational Appointments Department, The British Council, 90/91 Tottenham Court Road, London W1P 0DT quoting reference U101/83. Further details obtainable from either source. HI

Universities continued

University of West Indies Trinidad

Applications are invited from suitably qualified candidates for the following posts:

SENIOR LECTURER/LECTURER LECTURER/ASSISTANT LECTURER

1. Senior Lecturer/Lecturer in Structural Analysis and Design, Department of Civil Engineering, U.W.I. St. Augustine, Trinidad, WI. The appointee will be required to teach undergraduate courses and carry out research work in one or more of the following areas: Structural Analysis and Design, Mechanics of Solids, Construction.

2. Lecturer/Assistant Lecturer in Engineering Geology in the Department of Civil Engineering, U.W.I. St. Augustine, Trinidad, W.I. The appointee will be required to teach undergraduate courses and carry out research work in Engineering Geology.

Salary scales: Senior Lecturer – TT$69,180–TT$90,168; Lecturer – TT$54,708–TT$77,604; Assistant Lecturer – TT$45,480–TT$49,296. (£1 sterling = TT$3.8472).

FSSU Unfurnished accommodation if available at 10% or furnished accommodation at 12½% or housing allowance of 20% of pensionable salary. Study and Travel Grant. Up to five (5) full economy passages on appointment and on normal termination. Detailed applications giving qualifications and experience and naming three (3) referees to the Secretary, U.W.I. St. Augustine, Trinidad, W.I. Applicants resident in the UK should also send one (1) copy to the Overseas Educational Appointments Department, The British Council, 90/91 Tottenham Court Road, London, W1P 0DT quoting reference U84–95/83. Further details are available from either source. HI

University of the West Indies Trinidad
PROFESSOR OF AGRICULTURAL ENGINEERING

Applications are invited from suitably qualified candidates for the post of Professor of Agricultural Engineering in the Faculty of Engineering, U.W.I. St. Augustine, Trinidad, W.I. The successful applicant will be required to give strong leadership in the teaching programme and will also be expected to initiate research programmes relevant to the needs of the Caribbean region. Preference will be given to those applicants with knowledge and experience of Agricultural Engineering in the Caribbean Region.

Salary Scale: TT$91,788 to TT$111,372. (£1 sterling = TT$3.8472).

FSSU Unfurnished accommodation if available at 10% or furnished accommodation at 12½% or housing allowance of 20% of pensionable salary. Up to five (5) full economy passages on appointment and on normal termination. Study and Travel Grant. Detailed applications giving qualifications and experience and naming three (3) referees to the Secretary, U.W.I. St. Augustine, Trinidad, W.I. Applicants resident in the UK should also send one (1) copy to the Overseas Educational Appointments Department, The British Council, 90/91 Tottenham Court Road, London, W1P 0DT quoting reference U89/83. Further details are available from either source. HI

University of Edinburgh
TEMPORARY LECTURESHIP IN INTERNATIONAL LAW

Applications are invited for a temporary Lectureship in the Department of International Law. The person appointed will be expected to teach in the courses offered within the department covering Public International Law, International Organisations and International Economic Law. It will, however, be an advantage if the successful applicant has a particular interest in the Law of the Sea. Salary on the scale £7,190 to £14,125 with placing according to qualifications and experience.

Further particulars from the Secretary to the University of Edinburgh, Old College, South Bridge, Edinburgh EH8 9YL, with whom applications (3 copies), giving names of three referees, should be lodged by 4th July 1983.

Please quote reference no. 1073. HI

University of The West Indies Trinidad
PROFESSOR OF AGRICULTURAL ECONOMICS

Applications are invited from suitably qualified candidates for the post of Professor of Agricultural Economics in the Department of Agricultural Economics and Farm Management. Applicants should have interests in Quantitative Analysis and/or Agricultural Development. Interest in other areas of Agricultural Economics will be an advantage. Duties will involve some coursework teaching and participation in the research programme personally possible with the help of research assistants and through supervising students, and to provide leadership in the discipline of Agricultural Economics.

Salary Scale: TT$91,788 – TT$111,372. (£1 sterling = TT$3.8472).

FSSU Unfurnished accommodation if available at 10% or furnished accommodation at 12½% or housing allowance of 20% of pensionable salary. Up to five (5) full economy passages on appointment and on normal termination. Study and Travel Grant. Detailed application giving qualifications and experience and naming three (3) referees to Secretary, U.W.I., St. Augustine, Trinidad, W.I. Applicants resident in the UK should also send one (1) copy to the Overseas Educational Appointments Department, The British Council, 90/91 Tottenham Court Road, London, W1P 0DT quoting reference U92/83. Further details obtainable from either source. HI

University of The West Indies Trinidad
PROFESSOR IN ACCOUNTING

Applications are invited from suitably qualified candidates for the post of Professor in Accounting in the Department of Management Studies, U.W.I. St. Augustine, Trinidad, W.I. The successful applicant will be expected to lecture in courses in Financial Accounting and Management Accounting at the B.Sc., Diploma, and M.Sc. levels, to assume leadership in the design course curriculum as well as to recommend appropriate reference and reading material, and to conduct research in Management with specific reference to the Caribbean area.

Salary Scale: TT$91,786 – TT$111,372. (£1 sterling = TT$3.8472).

FSSU Unfurnished accommodation if available at 10% or furnished accommodation at 12½% or housing allowance of 20% of pensionable salary. Up to five (5) full economy passages on appointment and on normal termination. Study and Travel Grant. Detailed application giving qualifications and experience and naming three (3) referees to Secretary, U.W.I., St. Augustine, Trinidad, W.I. Applicants resident in the UK should also send one (1) copy to the Overseas Educational Appointments Department, The British Council, 90/91 Tottenham Court Road, London W1P 0DT quoting reference U93/83. Further details obtainable from either source. HI

University of the West Indies Trinidad
LECTURER/ASSISTANT LECTURER in HISTORY

Applications are invited from suitably qualified candidates for the post of Lecturer/Assistant Lecturer in History.

U.W.I. St. Augustine, Trinidad, W.I. to teach History of Science and Technology or History of Economic Thought and History of Europe. In addition the appointee will be responsible for supervision of postgraduate research and teaching of the M.A. by coursework.

Salary Scale: Lecturer: TT$54,708 to TT$77,604. Assistant Lecturer: TT$45,480 – TT$49,296 (£1 sterling = TT$3.8472).

FSSU Unfurnished accommodation if available at 10% or furnished accommodation at 12½% or housing allowance of 20% of pensionable salary. Up to five (5) full economy passages on appointment and on normal termination. Study and Travel Grant. Detailed applications giving qualifications and experience and naming three referees to the Secretary, U.W.I., St. Augustine, Trinidad, W.I. Applicants resident in the UK should also send one (1) copy to the Overseas Educational Appointments Department, The British Council, 90/91 Tottenham Court Road, London W1P 0DT, quoting reference U100/83. Further details obtainable from either source. HI

University of Otago Dunedin, New Zealand
DIRECTOR ADVANCED BUSINESS PROGRAMME

Applications are invited for the post of Director of the Advanced Business Programme within the Faculty of Commerce, University of Otago. The Programme is based on a post-experience, full-time MBA, the modules of which are utilized in postgraduate diploma and as separate management development units. The Director is responsible for the administration and promotion of the Programme and is expected to contribute in teaching within the area of his or her own specialisation. This post represents a unique opportunity for a person who enjoys working with a wide range of subject specialists, has a strong interest in management development, and wishes to develop a close relationship with business firms throughout New Zealand. Candidates should be good business generalists with managerial experience, relevant higher degrees, previous experience of programmes of a similar nature and a creative approach to the learning process. The appointment will be at a level appropriate to the appointee's experience and qualifications up to and including Associate Professor.

Salary: Senior Lecturer NZ$27,088 – $34,387 per annum with a bar at NZ$30,127 per annum; Associate Professor NZ$37,886 per annum.

Further particulars are available from the Secretary General, Association of Commonwealth Universities (Appts), 36 Gordon Square, London WC1H 0PF, or from the Registrar of the University, P.O. Box 56, Dunedin, New Zealand.

Applications close on 31 August 1983. HI

University of Aberdeen
Department of Engineering

Applications are invited for two new

LECTURESHIPS IN ENGINEERING

tenable from 1 October 1983. The Department provides a four-year unified course in civil, electrical and mechanical engineering with specialisation in the final two years of the course. The posts are in the following areas:

(a) Manufacturing processes – The person appointed will be a member of the Mechanical Engineering Group and will be expected to have research and/or industrial experience in one or more of the following fields – methods of manufacture, metal forming, robotics, CAD/CAM or design for modern production techniques.

(b) Microelectronics – Candidates will be expected to be suitably qualified and to have postgraduate experience either in industry or in a University in one or more of the following fields – digital electronics, microprocessor systems, analogue/digital interface design.

Salary on the Lecturer's Scale £7,190 to £14,125 per annum, with appropriate placing.

Applications (9 copies) naming three referees, should be sent by 9 July 1983 to The Secretary, The University, Aberdeen, from whom further particulars may be obtained. HI

University of Newcastle Upon Tyne
Department of Surveying
DEMONSTRATOR

Applications are invited for the post of Demonstrator in the field of Surveying Science, tenable for a period of three years from 1st October 1983.

Applicants should possess a degree, preferably in land surveying or in a relevant subject which includes an element of land surveying, but applications from those with degrees in Computing Science or Mathematics and with an interest in the handling of digital data will also be considered. A postgraduate qualification would be an advantage.

The principal duties attached to the post are to assist in teaching undergraduate courses but facilities exist for research and the successful candidate will be given the opportunity and encouraged to undertake research.

Salary will be at an appropriate point on the Grade 1B(bar) scale: £6,310–£9,030 per annum, according to age, qualifications and experience.

Further particulars may be obtained from the Deputy Registrar (F.S.), The University, 6 Kensington Terrace, Newcastle upon Tyne NE1 7RU with whom applications (3 copies), together with the names and addresses of three referees, should be lodged not later than 8th July 1983. Please quote reference HI

Massey University Palmerston North, New Zealand
LECTURER IN ACCOUNTING AND FINANCE

Applications are sought from persons with appropriate qualifications in any of the fields of accounting and finance in which teaching is offered. Applications will also be welcomed from persons who have demonstrated scholarship in conceptual or technical areas with relevance to teaching and research in accounting.

The appointee will engage in teaching and research as part of the multi-disciplinary Faculty of Business Studies. Opportunities exist for academic staff to contribute to the activities of units closely associated with the Faculty, such as the Business Computer Systems Research Centre, and the Management, Education and Development Centre.

Specific requests for information on the Accounting and Finance programmes in the University in relation to this vacancy should be directed to Professor C. T. Heazlewood, Head of Department of Accounting and Finance.

Salary: Lecturer NZ$21,660 – $25,684.

Further details of the University, together with conditions of appointment, may be obtained from the Association of Commonwealth Universities (Appts), 36 Gordon Square, London WC1H 0PF, or from the Registrar of the University. Applications close on 15 July 1983. HI

University of The West Indies Trinidad
LIBRARIAN/DOCUMENTALIST

Applications are invited from suitably qualified candidates for the post of Librarian/Documentalist at Lecturer/Assistant Lecturer level in the School of Education. The successful applicant will be responsible to the Area Co-ordinator/Vice Dean of the School of Education. He/She will be expected to liaise with the main library and other departmental libraries on the campus, and to be responsible for the selection, acquisition and cataloguing of library materials as well as documents and indexing where necessary.

Salary: TT$54,708 – TT$77,604; Assistant Lecturer – TT$45,480 – TT$49,296. (£1 sterling = TT$3.8472).

FSSU Unfurnished accommodation if available at 10% or furnished accommodation at 12½% or housing allowance of 20% of pensionable salary. Up to five (5) full economy passages on appointment and on normal termination. Study and Travel Grant. Detailed applications giving qualifications and experience and naming three (3) referees to the Secretary, U.W.I. St. Augustine, Trinidad, W.I. Applicants resident in the UK should also send one (1) copy to the Overseas Educational Appointments Department, The British Council, 90/91 Tottenham Court Road, London, W1P 0DT quoting reference U105/83. Further details obtainable from either source. HI

The University of Sheffield
TEMPORARY LECTURESHIP IN THE DEPARTMENT OF ENGLISH LITERATURE

Applications are invited from men and women for the above post tenable from 1 October 1983 until 30 September 1984. Salary in the range £6,375 – £7,055 a year on the scale for Non-Clinical Lecturers. Expected age of candidates up to about 27 years but older candidates not excluded. Particulars from the Registrar and Secretary (Staffing), the University, Sheffield S10 2TN to whom applications (6 copies), including c.v. and the names of three referees, should be sent by 4 July 1983. Quote ref: R848/D1. HI

University of York
Department of Sociology
TEMPORARY LECTURESHIP

Applications are invited for a temporary lectureship in Sociology, tenable for two years from 1 October 1983. Candidates should normally have a higher degree in Sociology.

Salary on the Lecturers' scale £7,190 to £14,125 pa, with USS. The appointment will be made at the lower end of the scale.

Six copies of applications (one only from overseas candidates), naming three referees, should be sent by Friday 1 July 1983 to the Acting Registrar, University of York, Heslington, York, YO1 5DD, from whom further details may be obtained. Please quote reference 6/3290. HI

University of The West Indies Trinidad
ASSISTANT WORKS SUPERINTENDENT (CIVIL) at LECTURER/ASSISTANT LECTURER LEVEL

Applicants are invited from suitably qualified candidates for the post of Assistant Works Superintendent (Civil) at Lecturer/Assistant Lecturer level. Applicants should have a degree in Civil Engineering or Higher National Diploma and at least two years experience in Maintenance Department. The Appointee will be responsible for the Civil Engineering Maintenance carried out by the Department.

Salary Scale: Lecturer – TT$54,708 to TT$77,604; Assistant Lecturer – TT$45,480 to TT$49,296. (£1 sterling = TT$3.8472).

FSSU Unfurnished accommodation if available at 10% or furnished accommodation at 12½% or housing allowance at 20% of pensionable salary. Up to five (5) full economy passages on appointment and on normal termination. Study and Travel Grant. Detailed applications giving qualifications and experience and naming three (3) referees to the Secretary, U.W.I. St. Augustine, Trinidad, W.I. Applicants resident in the UK should also send one (1) copy to the Overseas Educational Appointments Dept. The British Council, 90/91 Tottenham Court Road, London W1P 0DT quoting reference U102/83. Further details obtainable from either source. HI

The University of Leeds
Department of Psychiatry
LECTURER (PSYCHOLOGY)

Applications are invited for the post of Lecturer (Psychology) in the above Department.

Salary on the scale for Lecturers £6,375–£13,505 (under review), according to age, qualifications and experience.

Applicants should have a first degree in Psychology or a joint degree where Psychology is at least half the component, together with postgraduate training and/or experience in ...

Informal enquiries to A. R. Dabbs, Senior Lecturer, Department of Psychiatry, University of Leeds, 15 Hyde Terrace, Leeds LS2 9LT, telephone (0532) 431431.

Application forms and further particulars may be obtained from the Registrar, The University, Leeds LS2 9JT, quoting reference number 106/18/OO, to whom applications should be addressed. Closing date for applications 8 July 1983. HI

University of Leicester
School of Social Work
LECTURER IN SOCIAL POLICY

Applications are invited for the above post, tenable from 1 October 1983 or as soon as possible thereafter. The post involves major responsibility for the organisation and teaching of social policy to students on the MA/CQSW Course. There are opportunities also to participate in the higher degree by research programme. Candidates should have a good degree in social science and interest in areas of social policy relevant to social workers.

Initial salary will depend on qualifications and experience on the Lecturers' Scale £7,190 to £14,125.

Further particulars from the Registrar, University of Leicester, University Road, Leicester, LE1 7RH, to whom applications should be sent on the form provided by 15 July 1983. Informal enquiry may be made to Herschel Prins, Director, School of Social Work, 107 Princess Road East, Leicester. LE1 7LA (0533–554407). HI

The University of Manchester
TEMPORARY LECTURER IN SOCIAL STATISTICS (DEMOGRAPHY)

Applications are invited for this post, tenable for three years from October 1st, 1983, in the Department of Econometrics and Social Statistics. The successful applicant will be required to teach and carry out research in the general area of Social Statistics and in particular to teach a 3rd-Year course in Demography. Previous training and competence in Demography is essential. Salary range p.a. £7,190 – £11,615. Superannuation. Particulars and application forms (returnable by July 1st) from the Registrar, The University, Manchester M13 9PL. Quote ref: 99/83/THES. HI

University of Canterbury New Zealand
SENIOR LECTURER OR LECTURER IN ACCOUNTANCY

Applications are invited for the above position in the Department of Accountancy.

Applications are sought primarily from persons capable of teaching courses and conducting research in Business Finance and/or Management Accounting. However, applications from persons qualified in other areas, such as Financial Accounting, Taxation, Public Sector Accounting, and Auditing, will be considered.

The salary for Senior Lecturers is on a scale from NZ$27,088 (bar) to $30,127 (bar), to $34,387 per annum and for Lecturers is on a scale from NZ$21,660 to $25,684 per annum.

Further particulars and Conditions of Appointment may be obtained from the Association of Commonwealth Universities (Appts), 36 Gordon Square, London WC1H 0PF.

Applications close with the Registrar, University of Canterbury, Private Bag, Christchurch, New Zealand, on 30 September 1983. HI

The University of Lancaster
Department of Linguistics and Modern English Language
TEMPORARY LECTURESHIP

Applications are invited for a Temporary Lectureship in the Department of Linguistics and Modern English Language, for a period of nine or twelve months from 1 October 1983. Candidates should be able to contribute to the broad range of undergraduate teaching in the Department, with an emphasis on Sociolinguistics and applications of Linguistics. They should, in addition, have adequate experience to cope with teaching at MA level in those fields, and have appropriate research publications. Salary will be within the first half of the Lecturer's scale. (£7,190–£10,250).

Further particulars may be obtained (quoting reference L381B) from the Establishment Office, University House, Bailrigg, Lancaster ... copies), naming three referees, should be sent not later than 8 July 1983. HI

University of Cambridge Jesus College
FELLOWSHIP AND COLLEGE LECTURESHIP IN HISTORY

Applications are invited for a Fellowship and College Lectureship in History from 1 October 1983 in the fields of either the Economic and Social History of England from 1450 to 1750 or European History since 1800. The appointment will be for three years, with the possibility of reappointment for two years; preference may be given to candidates under thirty years of age. The Fellow will be expected to teach up to twelve hours a week during Full Term. The salary for the post will be at a suitable point on the University Assistant Lecturer's scale, depending on age and experience; the scale is currently £6,800 a year, rising by four annual increments to £8,510. A deduction will be made for anyone resident in College.

Applications should be sent to the Master's Secretary by 7 July 1983 and should be accompanied by a curriculum vitae and the names of two referees. HI

University College Cardiff
David Owen Centre
PROJECT OFFICER

Project Officer required for writing micro-computer programs for the computer-assisted population training project (Poptran) in the David Owen Centre for Population Growth Studies at University College Cardiff. The appointment will be until June 30th 1984 in the first instance.

Research Assistant Scale £5,800–£8,085 p.a. – subject to a 3-month probationary period. A sociel science degree or background is desirable. Applicants should be able to demonstrate significant experience of Pascal or Fortran. Duties to commence as soon as possible.

Applications (ten copies), together with the names and addresses of two referees, should be forwarded to the Vice-Principal (Administration) & Registrar, University College, P. O. Box 78, Cardiff CF1 1XL, from whom further particulars will be available. Closing date 24th June 1983. Ref: 2020. HI

Universities continued

University of London
TECHNICAL ASSISTANT

We are seeking a Technical Assistant for the Controller of University Computing Services. This post involves providing administrative and technical support for a range of activities concerned with the provision of computing services in this major federal University.

Applicants should have a degree in physical, mathematical or computing sciences (or appropriate technical experience equivalent to such a qualification) coupled with good general knowledge of the 'state of the art' in computing today and the skills necessary for committee servicing.

The appointment is for a three year period. Salary will be within Administrative Grade IA of the National Salary Structure for University Administrative Officers currently £9,310 — £11,915 per annum £1,186 London Allowance.

Further particulars and application form obtainable from the Personnel Officer, Room 222, University of London, Senate House, Malet Street, London WC1E 7HU or by telephoning 01-636 8000 ext 3248. Closing date for applications is 8 July 1983. H1

University of Liverpool
Department of Physiology
LECTURER

Applications are invited for the post of Lecturer in the Department of Physiology. The Department is responsible for the teaching of Physiology to Medical, Dental and Science students and has particularly strong research groups in the fields of Cellular Secretion Mechanisms and Regulatory Peptides.

Candidates should be capable of attracting grant support ...

Brunel University
DIRECTOR OF COMPUTING UNIT

University of Aberdeen
Department of Systematic Theology
LECTURESHIP

University of Oxford
PROFESSORSHIP OF GEOGRAPHY

Heriot-Watt University
Department of Economics
TEMPORARY LECTURESHIP IN COMPARATIVE GOVERNMENT

Applications are invited for the above post which is tenable for one year only. Candidates should be qualified to teach a third year course on Comparative Government and a fourth year course on the Government of the E.C. to students in the Department of Economics taking a Government and Modern History degree.

Salary will be at or near the bottom of the lecturer's scale.

Please write for an application form and further particulars to the Staff Officer, Heriot-Watt University, Chambers Street, Edinburgh EH1 1HX. Please quote ref. no. 31/83. Closing date for applications is Monday 4th July 1983. H1

The University of Sheffield
CHAIR IN THE DEPARTMENT OF INFORMATION STUDIES

Applications are invited for a Chair in the Department of Information Studies, tenable from 1 October 1983 or as soon as possible thereafter. Candidates should have a primary concern in the field of Librarianship.

Particulars from the Registrar and Secretary (Staffing), the University, Sheffield S10 2TN to whom applications (four copies) ...

The University of Sheffield
CHAIR OF ECONOMICS

University of Southampton
CHAIR OF OPERATIONAL RESEARCH

University of Aberdeen
Department of Public Law
LECTURESHIP

Fellowships

University College Cardiff
Department of Psychology
RESEARCH FELLOW

The University of Leeds
Department of Chemical Engineering
RESEARCH FELLOW – BIOTECHNOLOGY

Polytechnics

PAISLEY COLLEGE
Department of Mathematics and Computing

SENIOR LECTURER/ LECTURER IN COMPUTING

This new post has been established by the Scottish Education Department as part of the Information Technology initiative.

The successful candidate will be expected to contribute to the existing Honours and Degree courses in Computing Science, and to the modular MSc in Information Technology currently under development.

RESEARCH ASSISTANTS
(3 posts)

A three year research grant has been awarded by the SERC for development of advanced software tools.

Applicants should be skilled in writing standard Pascal and preferably also have a working knowledge of C, Unix and some knowledge of Ada.

Salary Scales:	SL'A'	£12,228 to £15,411
	L'A'	£8,313 to £13,125
	RA 1A	£7,190 to £11 615 (1 post)
	RA 1B	£6,310 to £8,530 (2 posts)

Application forms and further particulars may be obtained from the Personnel Officer, Paisley College of Technology, High Street, Paisley PA1 2BE. Tel: 041-887 1241, Ext. 230.

LECTURESHIP VACANCIES at KINGSTON POLYTECHNIC

SCHOOL OF ELECTRONIC ENGINEERING & COMPUTER SCIENCE
LECTURESHIPS IN INFORMATION TECHNOLOGY

Applications are invited for three further posts to support the Polytechnic's new postgraduate and undergraduate courses. Applicants should have a master's degree or equivalent industrial, commercial or research experience in one of the following areas:

Digital Systems (hardware & software) | Computer Systems
Data Communications | Software Engineering
Knowledge-based Systems

although applications in other contiguous areas of expertise would be welcome. Successful candidates will be expected to teach at both undergraduate and postgraduate level and to take an active part in research. Opportunities exist to work part-time for an MPhil or PhD research degree. Appointments will be made on one of the salary ranges listed below subject to qualifications and experience.
Application forms to be returned immediately.

SCHOOL OF GEOGRAPHY
LECTURER II IN GEOGRAPHY

Applications are invited from geographers with a strong computing and statistical background who have specialized in applied aspects of their subjects. Candidates should have an Honours degree and a postgraduate qualification. Closing date 1st July 1983.

SCHOOL OF LAW
LECTURER II IN LAW *(1 year)*

Applications are invited from suitably qualified candidates for a lecturer in COMMERCIAL LAW subjects, on a fixed term contract of one year from September 1983. Closing date 1st July 1983.

Salary ranges (including London allowance):
Lecturer II: £7,830–£12,183.
Senior Lecturer: £11,299–£14,058
Principal Lecturer: £13,134–£16,359.

Further details and application forms from the Academic Registry, Dept. AO, Kingston Polytechnic, Penrhyn Road, Kingston upon Thames KT1 2EE. Tel: 01-549 1366.

NEWCASTLE UPON TYNE POLYTECHNIC

Applications are invited for the following vacancies:

FACULTY OF PROFESSIONAL STUDIES
SCHOOL OF ECONOMICS
SENIOR LECTURER IN ECONOMICS
Ref. No. A20/83

The School wishes to recruit an Economist with interests in Applied Microeconomics, Financial, Industrial Economics, to share in the teaching of its degree and sub-degree level courses. It is expected that the person appointed will wish to develop/extend an interest in research in some of these fields.

This post is tenable from September 1983, or as soon as possible thereafter.

FACULTY OF COMMUNITY AND SOCIAL STUDIES
SCHOOL OF OCCUPATIONAL STUDIES
SENIOR LECTURER IN PERSONNEL MANAGEMENT
Ref. No. A21/83

Required to undertake teaching with all stages of the IPM scheme of professional training, with particular reference to professional practice and industrial relations. Human resource management teaching is also undertaken with the BA Business Studies and the Diploma in Management Studies.

Applicants should be professionally qualified in personnel management, hold a relevant degree and preferably demonstrate appropriate experience.

SCHOOL OF BEHAVIOURAL SCIENCE
TEMPORARY LECTURER II IN PSYCHOLOGY
Ref. No A22/83

Required for the above post which is tenable only from 1st October, 1983 to 30th June, 1984. Applicants should possess a good Honours Degree in Psychology and preferably a Higher Degree and/or research experience and have an interest in social psychology and sports psychology. The appointee will be required to teach social psychology on the BSc Honours Psychology Degree and to contribute to the teaching of psychology to the BA Sport Studies Degree.

PAISLEY COLLEGE
Department of Mathematics and Computing

SENIOR LECTURESHIP in Modern Applied Mathematics

Applications are invited from well-qualified mathematicians with industrial and research experience to contribute to the development of the mathematical sciences. The areas to be further developed are those which are of practical use in industry, are computer-based and include modelling, simulation and digital techniques.

The successful applicant will be expected to develop courses in modern industrial applied mathematics at undergraduate and postgraduate levels and to maintain and develop associated collaboration with industry.

Salary Scale: SL 'A' – £12,228 to £15,411.

Application forms and further particulars may be obtained from the Personnel Officer, Paisley College of Technology, High Street, Paisley PA1 2BE. Tel: 041-887 1241, Ext. 230.

Coventry (Lancaster) Polytechnic
Faculty of Engineering
PRINCIPAL LECTURER IN INFORMATION SYSTEMS ENGINEERING
LECTURER II/ SENIOR LECTURER IN ELECTRICAL & ELECTRONIC ENGINEERING
LECTURER II/ SENIOR LECTURER IN SYSTEMS & CONTROL

Teesside Polytechnic
Department of Computer Science
LECTURER II/SENIOR LECTURER IN COMPUTER SCIENCE

Polytechnics continued

PLYMOUTH POLYTECHNIC
Faculty of Social Science
Department of Psychology

HEAD OF DEPARTMENT
with possible election to a Professorship.

Applicants with high academic qualifications and appropriate education and research experience are invited for this appointment. The ability to give academic and research leadership is essential.

Salary: Head of Department Grade VI £16,632–£16,327

Application forms to be returned by 31 July, 1983 can be obtained with further particulars from the Personnel Officer, Plymouth Polytechnic.

Drake Circus, Plymouth, Devon. PL4 8AA.

Teesside Polytechnic
Department of Design

HEAD OF DEPARTMENT OF DESIGN (Grade V)

Applications are invited from persons with appropriate qualifications and experience.

The Department has honours degree courses in Industrial Design and Interior Design, as well as a course leading to the Associateship of the Clothing and Footwear Institute. Developments in the field of Computer Aided Design are prominent in the present work of the Department.

Salary Scale: £10,350–£17,061

Further particulars and application forms available from the Personnel Section, Teesside Polytechnic, Borough Road, Middlesbrough, Cleveland TS1 3BA. Tel: (0642) 218121, Ext. 4114.

Closing date for applications: 15th July, 1983.

HUDDERSFIELD POLYTECHNIC
Department of Life Sciences
Re-Advertisement

PRINCIPAL LECTURER
Ref: ACA/467B
Salary £12,519–£13,938 (bar) £15,744

Applications are invited for the permanent post of Principal Lecturer in Human Ecology. The successful candidate is likely to possess or demonstrate the following:

1. wide experience of, and involvement in, human environmental issues
2. substantial and currently active research interests in Human Ecology
3. ability and preparedness to make an important academic and administrative contribution to the BSc(HONS) Human Ecology degree, and to take a leading role in its future development.

Further details and application forms are available from the Personnel Office, The Polytechnic, Queensgate, Huddersfield HD1 3DH, Tel: (0484) 22288, Ext. 224 and should be returned by 30th June, 1983.

The Polytechnic of North London
Department of History, Philosophy and European Studies
SENIOR LECTURER/ LECTURER GRADE II IN ECONOMICS

Manchester Polytechnic
John Dalton Faculty of Technology
Department of Mechanical Production and Chemical Engineering
PRINCIPAL LECTURER OR LECTURER II 'MANUFACTURING'

DUNDEE COLLEGE OF TECHNOLOGY
Department of Electrical & Electronic Engineering

LECTURESHIP

Applicants should possess a good honours degree in electrical and/or electronic engineering together with appropriate industrial and/or research experience.

Salary scale: £8,313–£12,228 (bar)–£13,125, with initial placing depending upon approved previous experience. Financial assistance towards the cost of removal may be payable.

Further particulars and application forms may be obtained from the Personnel Officer, Dundee College of Technology, Bell Street, Dundee DD1 1HG, to whom completed application forms should be returned by 1st July, 1983.

SHEFFIELD CITY POLYTECHNIC
LECTURER II IN MECHANICS OF MATERIALS
DEPARTMENT OF MECHANICAL AND PRODUCTION ENGINEERING

The person appointed will join the small group of staff concerned mainly with teaching Mechanics (Strengths) of Materials on the Degree, Diploma and Certificate courses and will be expected to contribute to the Department's research and development programme.

Applicants should possess a degree or higher degree in Mechanical Engineering and have appropriate research or industrial experience.

Salary Scale: £7,215–£11,568

Application forms and further details are available from the Personnel Officer (Dept. T), Sheffield City Polytechnic, Fitzalan Square, Sheffield S1 2BB, or by phoning (0742) 20911, Ext. 387. Completed forms should be returned by 30th June.

Sheffield City Polytechnic is an Equal Opportunities Employer.

The POLYTECHNIC WOLVERHAMPTON
Department of Economics and Social Studies

Lecturer II/Senior Lecturer in Health Visiting to teach on Health Visitor and related courses.

Details and application forms from Establishment Clerk, The Polytechnic, Wolverhampton WV1 1SB or Tel: Wolverhampton (0902) 710654 (Ansaphone).

Oxford Polytechnic
RESEARCH ASSISTANT IN PHYSICAL SCIENCES
Selective optical materials for energy efficiency

The Department of Geology and Physical Sciences is seeking to appoint a Research Assistant to work for three years on the preparation and characterisation of optically selective materials used to improve the thermal efficiency of solar energy converters. Particular emphasis is placed on the study of transparent heat insulating coatings on polymeric substrates and the potential of electrochromic and photochromic materials for use in innovative converter designs. Surfaces will be prepared using chemical and vacuum evaporation techniques and analysed using reflectance and transmittance spectroscopy and electron microscopy. Durability aspects of the materials will also be studied.

Candidates for the post should possess a good honours degree, preferably in chemistry or materials science. The successful applicant will be permitted to register for the degree of MPhil/PhD ...

Oxford Polytechnic
LECTURER II/ SENIOR LECTURER IN PHYSICAL SCIENCES
Inorganic/organic/organometallic chemistry

Applications are invited for the post of Lecturer II/Senior Lecturer in Physical Sciences (Inorganic/Organic/Organometallic Chemistry) tenable in the Department of Geology & Physical Sciences from 1 September 1983. The successful applicant will contribute to the teaching in inorganic and organic chemistry within the Department's undergraduate and TEC courses in Physical Sciences and Chemistry.

The person appointed will be expected to undertake and develop research, extending the existing activity with the Department.

Salary according to qualifications and experience, currently in the following ranges: Lecturer II £7,215–£11,598. Senior Lecturer £10,683–£13,443.

An application form and further details of the post and the Department may be obtained from Mrs Judy Siskey, Administration, Oxford Polytechnic ...

City of Birmingham Polytechnic
Faculty of Art and Design
LECTURER II/ SENIOR LECTURER (HALF OF FULL-TIME) COMPUTER AIDED DESIGN/ INFORMATION TECHNOLOGY
(Re-advertisement)

Oxford Polytechnic
Department of Engineering
TEMPORARY LECTURER II/ SENIOR LECTURER IN MATHEMATICS

Applications are invited for the post of

Lecturer II in Law

Salary scale: £7,215–£11,568

Application forms and further details, Quoting Reference AA/82, from the Personnel Office, Preston Polytechnic, Preston PR1 2TQ. Tel: (0772) 262027.

Closing Date 27th June 1983.

PRESTON POLY TECHNIC

Oxford Polytechnic
Department of Management & Business Studies
LECTURER II/ SENIOR LECTURER IN MARKETING

Applications are invited for a post in Marketing. Teaching in the Department includes an option in the BA Honours Business Studies degree and an option in the Business Education Council Higher National Awards course ...

Brighton Polytechnic
Department of Business Studies
LECTURER II/ SENIOR LECTURER IN MARKET...

Lecturer in Law
£7,470–
£13,431 p.a. inc.

Applications are invited for a lectureship in law on a two-year contract, to teach public law and to offer a second subject specialism. Applications from candidates offering legal theory, commercial law or criminal law would be especially welcome.

Candidates should have a good honours degree and have completed or be currently undertaking a higher degree.

Telephone or write quoting ref: A3509 for further details and an application form: Personnel Office, Middlesex Polytechnic, 114 Chase Side, London N14 5PN. Tel: 01-886 6599. Closing date 24th June.

Middlesex Polytechnic

Sunderland Polytechnic
Faculty of Humanities
Department of Social Sciences
LECTURER II/SENIOR LECTURER IN SOCIOLOGY (TWO POSTS)

Colleges of Further Education

Business Services

PROFESSIONAL TYPING SERVICE

Personal

Technical Colleges

Surrey Education Committee
NORTH EAST SURREY COLLEGE OF TECHNOLOGY
Reigate Road, Ewell, Epsom, Surrey KT17 3DS

Applications are invited for the following posts to be filled as soon as possible:

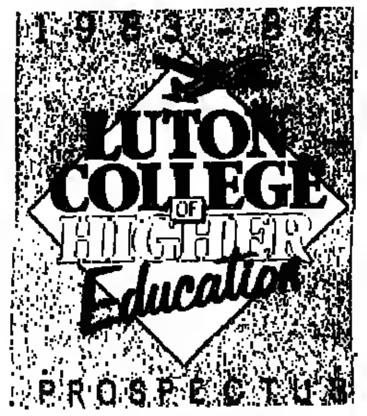
Lecturer I in Law
Lecturer I in Business Communication
(Background to Business)

Salary Scale – Lecturer I: £5,355–£9,267 pa
Plus £246 pa London Fringe Allowance
Generous relocation expenses in approved cases

Please send a stamped addressed envelope for further particulars and application form from the Vice-Principal.

Colleges of Higher Education

OPPORTUNITIES FOR HIGH FLYERS IN
Finance
Computer Studies
Quantitative Techniques
Public Administration
Marketing
Tourism



Due to the continuing expansion of our full time B/TEC Higher National Diploma in Business Studies, the Department of Business Studies and Public Administration have several vacancies for full time and temporary lecturing staff.

For further details contact Val Dempsey, Assistant Director
Luton College of Higher Education
Park Square, Luton, Beds. LU1 3JU
Tel: (0582) 34111
Closing date for applications 30 June.

Roehampton Institute
Digby Stuart
Froebel
Southlands
Whitelands

Courses offered by the Roehampton Institute of Higher Education are in combined studies leading to university first and higher degrees. The Institute seeks to make the following appointment with

DEAN OF EDUCATION

Applications are invited for this newly created post which is an extremely important appointment in a developing federal institute. The successful applicant will be Head of the School of Education and have very considerable opportunity for leadership in one of the largest Schools of Education in the country.

Salary, including allowances, will be in the range £16,696 to £20,391.

Further particulars and application forms may be obtained by writing to:

R. A. Fennell, Assistant Secretary, Roehampton Institute of Higher Education, Richardson Building, Digby Stuart College, Roehampton Lane, London SW15 5PH.

Closing date for applications: Friday 22nd July, 1983.

West Sussex Institute of Higher Education
(incorporating Bishop Otter College, Chichester, and Bognor Regis College)

POSTS IN T.E.F.L.

Kent County Council Education Committee
Mid-Kent College of Higher and Further Education

PRINCIPAL LECTURER IN COMPUTER AIDED ENGINEERING

Cambridgeshire College of Arts and Technology

LECTURER II IN ELECTRONICS

South Glamorgan County Council
SOUTH GLAMORGAN INSTITUTE OF HIGHER EDUCATION (CARDIFF)
Faculty of Art and Design

LECTURER 2 – DESIGN HISTORY
(Vacancy for September 1983)

Applications are invited for the above post from graduates of relevant disciplines preferably with postgraduate qualifications or research interests. The person appointed will be required to contribute to the teaching of the history and theory of design to students following design degree and higher DATEC courses. A specialist or research interest in the history of product design would be an advantage.

Salary Scale: £7,215–£11,565.

Further particulars and application forms may be obtained from The Personnel Officer, South Glamorgan Institute of Higher Education, Cyncoed Centre, Cyncoed Road, Cardiff CF2 6XD. Completed applications should be returned within fourteen days of the publication of this advertisement. Ref: L2/21.

City of Wakefield Metropolitan District Council
Bretton Hall College of Higher Education
affiliated to the University of Leeds

LECTURER/SENIOR LECTURER IN EDUCATIONAL STUDIES

(Temporary 3 year appointment — £3,855/£1P, 173/£12,816)

Required as soon as possible. The tutor appointed will be expected to contribute to B.Ed. (Hons) Courses/In-Service work with teachers/B.A. courses in Human Sciences. Candidates must have an appropriate academic qualification, recent experience of teaching in ethnically mixed secondary schools and should combine an interest in academic studies with a strong desire to relate theory to practice. Further details telephone The Principal. 092 485 261.

Application forms available from the Chief Education Officer, Education Department, 8 Bond Street, Wakefield, to be returned within 3 weeks of the appearance of the advertisement.

Unless applicants receive notification within 6 weeks of the specified closing date, would they please assume they have been unsuccessful. In the interests of economy individual letters will not be sent. H6

Secondary Education

St. Edward's School
DESIGN TEACHER

Research & Studentships

The University of Manchester
Department of Accounting and Business Finance

RESEARCH ASSISTANT/RESEARCH ASSOCIATE IN ACCOUNTING

The University of Leeds
Department of Social Policy and Health Services Studies

PRE-DOCTORAL RESEARCH ASSISTANT

Colleges of Art

DORSET COUNTY COUNCIL
Bournemouth and Poole College of Art and Design
SCHOOL OF FOUNDATION STUDIES
Shelley Park, Beechwood Avenue, Boscombe, Bournemouth
Tel: 0202-38433

PART-TIME
LECTURER

Required from September 1983 to teach Basic Colour and Design to students on Foundation and DATEC General Art and Design Courses. Also part-time Lecturers for DATEC Diploma and Higher Diploma in Technical Illustration.

Further information and application forms returnable by 28th June can be obtained from the Departmental Secretary at the above address.

Inner London Education Authority
Central School of Art and Design
Southampton Row, London WC1B 4AP
Telephone 01-405 1825

CERAMICS DEPARTMENT

Required for September P.4 LECTURER II for the BA (Hons) Course to teach Drawing, Design and Applied decoration in the ...

The University College of Wales Aberystwyth
Department of Physics

SERC-CASE STUDENTSHIP

The University College of Wales Aberystwyth

POSTGRADUATE RESEARCH STUDENTSHIPS

University of Hull
Physics Department

CASE and IT STUDENTSHIPS

UMIST

RESEARCH ASSISTANT

Applications including a full c.v. and quoting reference CSC/77/CJ, should be sent to the Registrar, Room 82, UMIST, PO Box 88, Manchester M60 1QD by 30 June 1983. H11

Thames Poly
School of Electrical and Electronic Engineering

SENIOR LECTURER IN ELECTRONIC ENGINEERING

School of Mathematics, Statistics and Computing

LECTURER II/ SENIOR LECTURER IN STATISTICS AND OPERATIONAL RESEARCH

LECTURER II (TEMPORARY POST)

RESEARCH ASSISTANT/ STUDENTS

School of Humanities

TEMPORARY ASSOCIATE LECTURER II (HALF-TIME) IN ENGLISH

RESEARCH ASSISTANT

Courses

University of London Institute of Education
Department of the Sociology of Education

S.S.R.C. Postgraduate Studentships

Two S.S.R.C. awards are available for one year full-time study leading to Masters degrees in the Sociology of Education in either the Faculty of Education or in the Faculty of Economics depending upon candidates initial degrees. Part-time and full-time places are also available for self-financing or seconded students wishing to read for these degrees. The courses offer a thorough training in sociological theory and research methods as they apply to education and to issues of contemporary educational concern.

Applications are also invited from candidates wishing to be considered for sponsoring for S.S.R.C. Pool Awards leading to two year research degrees in Sociology of Education.

Application forms for S.S.R.C. studentships should be applied for as soon as possible and returned by 27th June, to: The Academic Registrar (TES 23), University of London Institute of Education, 20 Bedford Way, London WC1H 0AL.

Courses continued

Ealing College of Higher Education

LL/II IN ACCOUNTING STUDIES

LI in Statistics and Operational Research

University of Sussex
Centre for Continuing Education in Higher & Further Education

PART-TIME M.A. IN EDUCATION

University of Kent at Canterbury
Faculty of Social Sciences
Board of Studies in Quantitative Social Science and Management Science

1. M.A. IN MANAGEMENT SCIENCE
2. M.A. IN QUANTITATIVE SOCIAL SCIENCE
3. M.Phil/Ph.D IN MANAGEMENT SCIENCE
4. M.Phil/Ph.D IN QUANTITATIVE SOCIAL SCIENCE

Overseas

UNIVERSITY OF NATAL
Department of Accountancy
DURBAN, SOUTH AFRICA

Applications are invited from suitably qualified persons regardless of sex, religion, race, colour or national origin for appointment to the post of:

D65/83 – **Lecturer**
D66/83 – **Senior Lecturer**

While no particular field is specified, preference may be given to applicants with special interests and expertise in taxation and/or auditing.

The successful applicant may qualify for consideration in terms of the Public Accountants' and Auditors' Board's policy of subventing the salaries of key staff in Accountancy on an annual basis.

Salary in the range:
D65/83 – R12,657 to R22,173 per annum
D66/83 – R16,557 to R24,045 per annum

The commencing salary notch will be dependent on the qualifications and/or experience of the successful applicant. In addition, a service bonus of 93% of one month's salary is payable annually.

Application forms, further particulars of the post and information on pension, medical aid, group insurance, staff bursary, housing loan and subsidy schemes, long leave conditions and travelling expenses on first appointment are obtainable from the Secretary, South African Universities Office, Chichester House, 278 High Holborn, London WC1V 7HE or the Registrar, University of Natal, King George V Avenue, Durban, 4001, with whom applications, on the prescribed form, must be lodged not later than 29th July 1983 quoting the relevant reference number.

Program Secretary of European Program
The Woodrow Wilson International Center for Scholars in Washington, DC

seeks person to provide intellectual and administrative leadership for a Program of advanced research, meetings, conferences and publications covering eastern and western Europe. Program Secretary responsible for developing and planning intellectual agenda, evaluating and administering European Program and securing funds to support it within framework of Wilson Center's general policies and direction. Send letter and c.v. to Wilson Center, Smithsonian Institution Building, 1000 Jefferson Drive, SW, Washington, DC 20560, before 1st July, 1983. Salary dependent upon experience. Appointment to begin 15th September, 1983. SI is EOE employer.

Administration

POLYTECHNIC OF THE SOUTH BANK
Borough Road, London SE1 0AA

SENIOR ADMINISTRATIVE ASSISTANT
Salary up to £11,500 (under review)

To be responsible among other things for the day to day organization of portering, cleaning, purchasing, transport and supplies.

Experience in a similar post would be an advantage, but not essential.

This is an opportunity to join a large, progressive organization which retains much of the informal atmosphere of smaller organizations.

Further details and application forms from the Staffing Officer. Tel: 01-928 8989, Ext. 2355. Closing date for receipt of completed application forms 5th July, 1983.

Educational Psychologists
(Two Posts)
Salary £8,454 to £14,253 per annum plus £939 London Weighting

The Psychologists appointed will also have a leadership role in the area remedial team and responsibility for monitoring children in some of the Special Schools. Interest and experience in helping children to remain within the normal school system including consultation to schools is desirable.

The Psychologist is also a member of a small Child Guidance team covering the same area, working with families, groups and individual children.

The borough is well served with Special School facilities but the policy is to achieve as much integration as possible. To this end a new team of support teachers is to be appointed and the School Psychological Service will have an important role in this process.

The pupil ratio for Educational Psychologists in Brent is 1 to 5,000.

Brent is an equal opportunity employer. Applications are welcome from candidates regardless of race, nationality, ethnic or national origins, age, marital status, sex, sexual orientation and from registered disabled persons.

Application forms and job descriptions from the Personnel Division, Room 1, Brent Town Hall Annexe, Forty Lane, Wembley, Middlesex HA9 9BR returnable 6th July, 1983. Tel: 01-903 0371 (24 hour Ansafone service). Reference number E/616 must be quoted.

London Borough of
BRENT

Overseas continued

Institute of Technology

Tenured Appointment

PRINCIPAL LECTURER ACCOUNTING

The School of Accounting desires to appoint a person who will provide academic leadership in teaching, research and development in one of the following areas: financial accounting, managerial accounting, government accounting or auditing.

Applicants should possess a relevant higher degree. Applications will also be considered from persons with exceptional industrial/public/government accounting experience at a senior level in lieu of a higher degree.

The successful applicant will have a background which includes significant industrial and/or academic experience, and will be capable of contributing to the review and development of academic programmes as well as providing leadership, assistance and encouragement of staff initiatives, especially in research and publication. (Ref 583A)

Salary: $39,858 per annum
Conditions include fares for appointee and family plus assistance with removal expenses, superannuation
Applications: Details including the names and addresses of three referees should be submitted in duplicate not later than 31st July 1983 to the Migration Officer, Western Australia House, 115 Strand, London WC2R 0AJ, from whom further information may be obtained
When applying please quote Ref. No and Code HES

Polytechnics continued

CLEVELAND

TEESSIDE POLYTECHNIC
Department of Business and Professional Studies

TEMPORARY LECTURER GRADE II IN ACCOUNTANCY

Please mention The THES when replying to adverts

free university
amsterdam

The Free University - Amsterdam, Interfaculty of Human Movement Science and Education seeks for the Workgroup Exercise Physiology and Health a

(full) professor of health science

The person appointed will be required to teach and carry out research in the field of health science from a human movement perspective.

He/she must be capable of leading a team of research workers - including students for the Dutch equivalent of the Master's degree and Ph.D. - in cooperation with the Coronel Laboratory of Occupational and Environmental Health in the medical subfaculty of the University of Amsterdam.

The teaching curriculum for health science is organized in cooperation with other departments of the Interfaculty.

The successful candidate will have a multiple appointment: in the Interfaculty of Human Movement Science and Education; in the Faculty of Medicine (Free University) and in the Subfaculty of Medicine (University of Amsterdam).

Candidates should identify themselves in the working climate of the Universities mentioned.

Candidates should have wide experience in research and teaching in the field of health science. They should also have had administrative experience and should be prepared to direct a proportion of their total worktime in that direction.

In the case of a non-Dutch speaking candidate being appointed, he/she should be prepared within a reasonable period (three years) to learn the language. There is English-speaking personnel already in the Interfaculty and all co-workers are proficient in the English language.

In the Interfaculty, the field of human movement embraces: therapy, rehabilitation, sport, school, ergonomics, the performing arts, etc. The Interfaculty of Human Movement Science and Education comprises five departments: Exercise Physiology and Health, Functional Anatomy, Psychology, Philosophy and History and Educational Sciences. The Interfaculty does not provide physical education teacher training.

Dfl. 78.000,00 and Dfl. 110.000,00 per year (gross). Placement on the scale will be determined by the experience and qualifications of the candidate appointed.

Requests for further information should be made to the secretary of the appointing committee: Drs. J.C.M. van Wieringen, Vondelstraat 48, 1054 GE Amsterdam, The Netherlands (tel. 020-18 48 44) or to the chairman of the committee: Prof.dr. R.H. Rozendal, Van der Boechorststraat 7, 1081 BT Amsterdam, P.O. Box 7161, The Netherlands (tel. 020-548 33 16).

Written applications, quoting the reference number 600-0753, should be directed to the "Dienst Personeelszaken der Vrije Universiteit", P.O. Box 7161, 1007 MC Amsterdam, The Netherlands.

Chisholm Institute of Technology
MELBOURNE, AUSTRALIA
SCHOOL OF ART AND DESIGN

Head of Department of Graphic Design

(Ref.: 83/16)

The School of Art and Design at Chisholm is one of the largest Australian Art Schools with specialities in Ceramic Design, Graphic Design and Fine Art. There are approximately 450 full-time degree and diploma students.

This position will become vacant on the retirement of the present Head of Department, Mr E. Worsley, in December 1983. This is a senior academic post with responsibility for the administration and further development of the following courses: Diploma of Art and Design (Graphic Design), Bachelor of Arts (Graphic Communication), and a Post-Graduate Diploma which is in the process of accreditation.

There are approximately one hundred and forty full-time students in the department which has fifteen full-time and part-time academic staff and three support technicians.

Applications are invited for this position from experienced designers-educators who have taught at a tertiary level. Administrative experience and a knowledge of course/curriculum development will be required.

Salary: $A36,178-$A39,686 p.a.

Written applications, in duplicate, quoting the reference number, and including personal and career details and the names and addresses of three referees, should reach the Staff Officer by 15 August 1983.

Caulfield Campus,
900 Dandenong Road, Caulfield East, 3145, Victoria, Australia.
131S8

Don's diary

Dunkerque

3am. I'm waiting for the jolt of the SNCF car to begin its journey; half a Triolazam tablet is washing inside me but the loud English voices in the compartment stop me from even dozing. I have walked endlessly, it seems, over these last three days: shopping and filling time across London, the obeying the lines of instruction drawn invisibly for waiting or tramping passengers, in the luggage-space where French ferry masters compel us to dump our property, then st the customs halls and control desks preceded by kilometre-long corridors of acquiescent, almost silent bodies.

Further along the conveyor belt of Inquisition, the controllers stand in couples viewing the line of beggars for entry; does one of them have to check on the other or are they like the Spanish police, detailed off in pairs so that there is always one who can read and one who can write? None of the passengers rebels: we are schooled in these minor passivities and subserviances seemingly unaware of the cocoon of silk-spun steel which envelops our migration. Two hours more of waiting, without explanation or announcement, and the train jerks forward. Yes, one is allowed after all to travel abroad.

Parc des Invalides

A slightly irregular mustering of daffodils here today, their gold heads lolling like dozy soldiers. At the nearby corners of this quarter of buildings of the French state, *kepied* police stand erect and observant. Vans in the streets unload mysterious complements of guards, machine-rifles slung from the brown fatigues... This is a cordial, informal work-place on the Rue de les Cases, government-funded and housing a vast collection of books, journals and archives on labour and welfare topics. Here Colette Chambelland, its amiable director, presides over a mass of communist, anarchist and socialist broadsheets, with the rows of books arranged in the order in which they were acquired (and catalogued accordingly).

I discover now that "Michel", the anarchist correspondent of Victor Serge (my subject of research) in 1921, actually had the alias of Ralenk, or Relenque, or Kneller, or more obscurely Le Terrassier. I must give his dates of birth and death and intervening career in my footnotes but to my chagrin it appears that Robrieux's fourth, biographical volume of his interior history of the French Communist Party is not yet published. Tantalizingly, Mlle Chambelland lets me know that she has just been correcting Robrieux's proofs: I had hoped vainly that the file on "Michel" would be available here for enquirers to some inner cabinet of confidences but it is not to be.

All I can do is consult the latest volume in Jean Maitron's munificent biographical dictionary of the French labour movement. No Relenk, Kneller or Michel le Terrassier here yet. What about A. Bernard, the French Communist Party Politbureau member referred to in a 1927 letter from Serge to Trotsky? Maitron's latest tome runs only from *Bal-* to *Bein-*. Another blank drawn: was my journey really necessary?

Bibliothèque Nationale

A concentrated, rushed day: this morning I buzzed up to Nanterre on the RER line to consult *Action Socialiste Révolutionnaire*, the Belgian Trotskyist weekly of the 1930s which is another locus to the Serge-Trotsky correspondence. I did manage to consult the Catholic-leftist periodical *Esprit* in which one of Trotsky's old lieutenants in Spain confesses that his politics in the epoch of the civil war may have been somewhat sectarian. But there is nothing in the catalogue from Belgium. The slot machines outside the library are good, with cake morsels and warm *chocolat*.

Now I register myself with the authorities at the Bibliothèque Nationale: double control here again, an interview in a booth outlining the purpose of my visit and the name of the journals I want, further form-filling across the hall before a smart clerk who copies my passport details, exchanges my *laisser-passer* for a *carte des lecteurs*, writes down my number in a ledger and issues a second *laisser-passer*. In the huge *salle des périodiques* another watcher takes my reader's card from me and provides a plastic desk token. The catalogue again has nothing from Belgium, and all the pre-war material is out at the larger library at Versaille.

Grenoble

My hotel room has a soft reading light, a balcony overlooking the garden and square and two patterned rugs over a floor space smelling of scrubbed pine. There is no respite from the rain up in these Alpen parts and my chest feels heavy as I get accustomed to the thin air of the streets. An easy bus journey takes me out to Pierre Broué, director of the Institut Léon Trotsky here, who has a capacious archive drawn from police records and the obscurest journals of the Fourth International. A. Bernard he readily flips out for me from his index files and Claude Calzan of the Frossard faction from the 1920s.

Little or nothing still on the mysterious Michel and no material here on Belgium. But a good afternoon's talk on matters Sergian and Trotskyist, plus his gleanings from the hitherto-closed section of the Trotsky archive at Harvard. We agree on the identification of ... than (as one scholar has claimed) Serge's own: I have brought the relevant documentation from Jean Rière, the Serge executor and bibliophile in Paris who has been through the copies of *Contre Le Courant* in Serge's Mexican file, with their marginal notes to indicate his own authorship. A wonderful afternoon's work and one for which I have waited for several years.

Lyon

It has to be Brussels in one day's travelling from Grenoble. My plans for further sightseeing there are scotched through an indefinite and sudden bus strike, overtly because of attacks by passengers upon the staff but more deeply an expression of thwarted worker-protest against the Mitterrand measures. Along the river bank in Lyon I find a second-hand bookshop with Jean Galtier-Boissiere's memoirs of the 1930s, several pages devoted to his experience as a publisher for Serge's *De Lénine à Staline*.

Bruxelles

The red-dabbed posters for workers' festivals give a false impression of the strength of the radical tradition here: nothing remains from the far left whose relics I am picking over in my scholar's habit. The *Bibliothèque Albert I*er leaves books out for its readers only for a short period and I lose my requested volumes after an excessive lunch break with John Palmer, *The Guardian*'s Europe correspondent.

I return today and discover my haul to be tasty indeed: a thesis on the Belgian Trotskyist groups of the 1930s, and a complete file of *Action Socialiste Révolutionnaire*. There is no hint, though, of the identity of the "J. Fabre" who writes no article on Spain referred to in a letter of 1936 from Trotsky to Victor Serge. Regretfully I must index Comrade Fabre as a pseudonym belonging to an unknown. But what if he was related to "Michel"?

Peter Sedgwick

The author is a lecturer in the politics department at Leeds University.

Persuading the parties to go public

Bernard Crick

Last month I lamented the obvious: the incredibly low level at which the election was fought. I pondered on whether the way the BBC handles politics was cause or effect: achieving their statutory balance by turning most discussion of issues into short slanging matches of statistical abuse between politicians.

Perhaps it would be more reasonable to take them separately and in more depth: certainly the big television set-piece interviews of the leaders were less idiotic and demeaning to reason than the radio scraps. And a month ago it was not yet fully clear how equally awful was the press coverage, not in the sense of political bias, which is the born loser's perpetual excuse (personally I am never surprised that the BBC is not socialist, and even have some doubts that I would like it if it was). But awful in the sense that even the quality press soon ran away from the issues into an obsessive punters' commentary on the opinion polls and the future result.

"So-called victories" because I begin to worry whether democracy can stand much more of such degradation. I don't mean that democratic institutions will collapse into fascism. I simply mean that they will soon lose any pretence of being used democratically. Politics will become narrowed to the struggle for office between office-seeking politicians. "Jobs go to those who want them," a Conservative professor once remarked.

Oh, the Labour party has wider ambitions. But those who control the local party machines seem very little concerned to recruit new members who might threaten their own control. The Conservative Party will at least defend traditional liberties, it is said; but not if they result in Labour local authorities using traditional powers to vary the national pattern – small places like Sheffield, London and Scotland are in for a rough time under our new president and her assistants. (The words "prime minister" are now a quaint anachronism.)

Well, at least the degrading election campaign is all over. But one wakes up the morning after the night before (if I may weep for my party as well as for my country, with its three to four million use to anyone and plainly embarrassing to most voters in jobs) and one bears on the BBC: "Michael Foot said that there will be widespread and united determination to rebuild the party;" and: "Ken Livingstone ... the leaders of the Labour Party of not believing in their programme." For once I find it hard to keep my temper in control, so I remind myself that I've only had four hours sleep and that after a hard evening of knocking-up and driving to the polls innocent Scottish working-class voters: "Och, the polls is rubbish. We're ginn t'win ye ken." "Here we might," we didn't.

However, Michael Foot's remark may be innocent, almost empty: but if I was tired, depressive, ill tempered and desperately worried for the future of our country, I would say the need to "rebuild" the Labour Party comes very low on any rational scale of priorities compared to the needs for the party, whether old-build, new-build, falling-down or building-up, to face the reality of the unpopularity of its programme.

The Conservatives campaigned on Labour's programme. No amount of internal thinking or comradely debate can get around that. Foot's role, successor to Callaghan, ... the party together. In fact he didn't – he could not prevent the Social Democratic secession.

Not that the old party noticed or cared. Labour never runs so fast than with its head chopped off. "We are better off without them," everywhere one heard that said. The party held together, all right, but seemed to lose any sense of what the ordinary public, even its own traditional stubborn voters, wanted or would stand for.

All those marvellous issues in the comprehensive programme! What a victory for socialism! If, that is, most members of the Labour Party are happy for it to be something like a students' union, passing generous resolutions against the Bomb, against Europe, and against injustice everywhere and not to be a political party in the boring sense described by the text-books of my trade and organizations seriously seeking to form a government.

Perhaps my own position will be misunderstood. I am a socialist. I scorn the Social Democrats as having an affable fantasy that truth must lie plonk between two extremes. Mrs Thatcher's lack of feeling for the unemployed and her party's deindustrialization of Britain, its capture by the hard men who make money and not things, drives me back to my student socialism.

Apart from the Europe and the animal rights planks, I can support my party's programme almost wholeheartedly – and Mr Enoch Powell has expressed exactly my sentiments on the folly of us thinking that we need or could ever use a nuclear deterrent. But I am amazed that intelligent local activists can actually believe that such a programme constitutes tactical election manifesto rather than a long-term strategy for the decades and generations, even.

If the Labour Party is not to dwindle away into something like the Italian Socialist Party, it must recover some hard historical and sociological sense of possible time-scales. And meantime it must deal with people and possible short-term allies as they are, not as they should be in theory; and try to win ordinary people round to understanding and support slowly and patiently, step by step.

The great danger for our country is that both the main parties have become almost psychotically internalized. But if Labour's new leaders do address themselves to the public, might not the party fall apart? Will the party become a perpetual students' union or an alternative government?

Rhetoric, said great Aristotle, must enunciate simple principles, be based on empathy with the audience addressed, and find the forms appropriate to carry the argument through that audience. Modern rhetoricians talk mainly to each other.

International Union View

The reality versus the rhetoric

Irving Spitzberg commented in this column last month that many of his members would have some reservations about seeing his remarks under the heading of "Union View".

Several members of academic staff in Australia might share those reservations, but I think it is true to say that attitudes are changing. It is slowly sinking in that, in these times, even senior tenured members of staff are not necessarily secure in their positions, and that the old "community of scholars" idea, although still suited to academic matters, has little relevance to relations between academic staff and their employers.

Like its counterparts elsewhere, the Federation of Australian University Staff Associations maintains a hybrid role as both a professional and an industrial academic staff association. This has been successful to date, and there is no reason why it should not continue to be so.

In Australia we have always tended to look to the United States and the United Kingdom for portents of what is to come. Of course there are exceptions to this general rule (Australia is actually ahead of the Western world in some respects) but it is a general rule none the less and no less true for higher education than other areas of concern. Thus it has been that for some years we have been watching with some apprehension, primarily in the pages of *The THES*, the progress of the budgetary horrors which have been inflicted on British universities involving massive funding cutbacks and hordes of staff being herded into early retirement.

Like Britain, Australia has a centralized university funding system; almost all university income comes from our federal government. And not so long ago we were making plans on the basis that we would soon be facing the same fate as British academics. Since 1975 the previous Liberal (i.e. conservative) government had been whittling away at higher education funding in a number of areas. As we entered the 1980s the whittle turned into a steady chop. Decisions of the infamous "Razor Gang" together with various other federal government decisions to manipulate (and invariably reduce) the resources available to universities seemed to be leading us down the road to the adoption of full-scale Thatcherism by the mid 1980s.

All that had been said about the role of the University Grants Committee, in that it seemed to have turned into an arm of government rather than an independent advisory body, was equally true, at least until recently, of our own Tertiary Education Commission.

But things have now altered, albeit temporarily. Since March we have had a Labour government, and a government which is apparently prepared to say, if not to do, some quite positive things in education. Our new minister for education, Senator Susan Ryan, has said that far from cutting back on higher education, she believes there should be from 25,000 to 40,000 new tertiary enrolments in the next few years. And the new minister for science and technology is certainly a more dynamic supporter of university research than was his predecessor.

But, as one opposition MP recently asked: "Will the dollars match the rhetoric?" The new Hawke government unwittingly inherited a A$9 billion budget deficit, and many of its election promises, although not broken, seem much further away than they did before the election.

So far there have been no further cuts in university funding. The previous government had threatened to reduce university allocations for salary budgets because anticipated salary increases had not occurred owing to the general "wage freeze", but this has not happened. There is little point in looking forward to anything other than a few frills in the forthcoming 1983–84 budget, however.

And we also still have to contend with the delayed effects of the financial stringency imposed by the previous government. Universities are definitely feeling the pinch and they are concluding, like their British counterparts, that as the major part of their expenditure is devoted to staff salaries, it is in this area that they must seek to make economies.

Quite naturally these proposals are vigorously opposed by the academic staff. Only time will tell the eventual outcome of this mini-battle, but it is symptomatic of a process which is going on to a greater or lesser degree in every Australian university. Junior staff are being sacked and not replaced; previously tenured lectureships are now being offered for fixed terms; full-time positions are being broken down into a number of (cheaper) part-time and casual jobs.

But these are problems within the current funding triennium, which extends to the end of 1984. All eyes are now on the Commonwealth Tertiary Education Commission, which must report to its new masters in May 1984 on its proposals for spending on tertiary education for the 1985–87 triennium.

The next few years will be interesting, but difficult. Changes are inevitable but it is yet uncertain whether these can be achieved in rational and sensible cooperation between staff and management or whether we shall be forced to the "barricades". Whatever the outcome, I look forward to sharing our experiences with *THES* readers through these columns in the future.

Les Wallis

The author is general secretary of the Federation of Australian University Staff Associations.

LETTERS TO THE EDITOR

Government's role in underwriting the salary bill of the universities

Sir, – Mr Geoffrey Caston takes me to task (*THES*, Letters June 10) for stating that the university salary bill is underwritten. I do not think that it is in dispute that the Government underwrites part of the salary bill for universities; the recent troubles have been about cutting back expanding salary bills. Now that inflation is below 5 per cent and provided universities contain their salary bills, negotiating increases on a norm tending to zero, there is no reason to suppose the Government will not underwrite the salary bill of those who remain after the recent pruning exercise.

If universities start expanding their payrolls by creating new appointments they will get into the situation where the Government will turn off the tap again. The principle of dual funding (providing for teaching and a research floor) muddies the waters completely, in that it is impossible to isolate that element of the salary bill devoted to maintenance of undergraduate teaching (even Lord Rothschild found this impossible).

The point that I was trying to make, is that as university teachers' primary function is to teach an admitted quota of the nation's youth, that as the Government in effect (via UGC) controls intake, and prescribes staffing ratios, and that as national salary scales are approved by the DES in consultation with the Treasury, the Government must pay the lecturers' salaries.

Whether it will continue to vote funds for an unspecified average amount of research time build into the national salary scales is another matter. Obviously, as there are some university lecturers in some departments who spend their time teaching a high number of hours, there are others in other departments who do research most of the time and have a low number of teaching hours.

The Government's view, I think, will be that it is not enough to leave it vague and trust to a swings and roundabout averaging out of teaching hours within a university, to the extent that no one actually teaches the average hours that are quoted from time to time. My feeling is that the Government will move toward separation of teaching and research funds with the object of clear costing of both. If this comes about, I have no hesitation in reasserting that the university teacher as distinct from researcher will have his salary underwritten by the Government. It will be remembered that the objective of the Prices and Incomes Board (NPBI) award in December 1968 was to shift salary rewards towards those substantially involved in teaching, and away from research.

My comments on Dr Hills's article were directed to pointing out that "privatization" of university funding would break the link with government funding as it exists, and thus lead inevitably to the breakdown of national salary scales, with a free for all and poaching of researchers by paying over the odds for them, and depression of the pay of those with no bargaining counter.

In this situation, the need for tenure is even greater, unless hiring and firing to balance the books is to be allowed to enter the picture. Dr Hills is for privatization, against tenure, and is thus prepared to accept market-place determination of salaries as a consequence (although perhaps not for those now in post, like himself).

Yours etc,
ROBERT GORDON,
162 Chelsea Cloisters,
Sloane Avenue,
London SW3.

Arts research

Sir, – Sir Peter Swinnerton-Dyer's reported statement (*THES*, May 27) that arts research "comes for free" will raise many a hollow laugh, not to say some despair. It represents a serious, yet common, misunderstanding and, if it is to become University Grants Committee policy, a very disturbing trend indeed. Almost all recent claims about the erosion of the country's research base have been concerned with the pure and applied physical sciences, or with heavy-level funding for the social sciences, and have rarely mentioned the arts.

Behind Sir Peter's statement seems to lie the assumption that any arts man can do research provided he is put in front of a book from his local library. While this may be possible in part in three English universities it is miserably inappropriate elsewhere. Although the largest arts research costs are absorbed by travel and subsistence, and overall totals are ludicrously low when compared even with small science projects, there seems to be little systematic understanding of needs in current planning beyond the provision of libraries and small amounts of "support funds".

At its worst, this appeared in a letter from a grant authority to a research student in my own university, reprimanding him for making a "repeat visit" to a local repository in which much of his sources are located! When this journal carried out a brief survey of work in one limited field even before the cuts the response was singularly depressing, revealing considerable institutional disparities in the support of basic research and little real official understanding of many of the most basic problems. There seemed to be an almost inevitable assumption that much arts work would be funded out of the individual academic's pocket, often on the grounds that it contributed to the scholar's own career advancement – more hollow laughter?

One is led to wonder how many commercial undertakings, whose efficiency we are frequently urged to emulate, would expect their staffs to finance research and development from their salaries. Would institutions and Sir Peter please think again?

Yours faithfully,
J. R. LOWERSON,
Editor, Southern History,
17a Brunswick Road, Gloucester.

Architects' pact

Sir, – The correspondence following my article "Architecture under stress" (*THES*, April 29) calls for some clarification. Mr Farrells (*THES*, June 3) questions my use of "environmental science". My intention was to distinguish between this area relating to his "applied physics of heat, light and sound" and the absent one of building *production*.

Mr James (*THES*, May 27) I think misunderstands the "Pact" – the tacit agreement that architects as "artists" would be allowed freedom in formal issues while clients would control functional and spatial meanings in buildings. Parliament not only yielded "legal guarantees of title, status, income and entry qualification" (though, as Mr James points out, architects' income aspirations were not achieved) but also sought to *weaken* the Pact by giving "users" and "producers" representation on ARC... circumvented this attempt to define buildings as other than sculpture.

Mr Healey (*THES*, May 13) suggests that by "subversion" in architecture I perhaps recommend architects "to subvert the law . . . or the forces of the Crown" when designing law courts or barracks: actually I said nothing about political or military subversion. My examples – Blake and Piranesi – concern "prophetic insights" by which dehumanization is attacked and this "subversion" remains open to artists even if they have to suffer patronage which personifies the forces they challenge. Architects who operate as "artists" do not remain free, for the functional programmes and spatial structures they achieve carrying meanings in conflict with those of their formal language particularly when this is radical. To exercise an analogous freedom they would have to ask "*Whose* functional programmes?", "*Whose* spatial structure?" and find answers through *architectural* skills. Contrary to Mr Healey's claim, an increasing number of clients are willing to employ architects who reject the Pact. Naturally such rejection carries some unemployment risks – is practice therefore to be organized to eliminate ...

Far from ... Hills's desire for a change from "vague 'liberal arts' mish-mash to proper vocational training", I merely questioned why he and Saint, in rejecting "high art", as apparently advocated by Mr Healey and ... did not press for functional and spatial skills but stopped short of better technology. In my reference to "handmaidenly" technicians I hoped the irony would express my disquiet at the diminution of technical skills among architects.

Churches and palaces, Mr Healey claims, demonstrate the truth that architecture is the handmaid of power structures. That is not relevant to my argument: their dominance was dislodged by new types generated by the dislocations of the late eighteenth century. As for Manhattan, it so unequivocally demonstrates my case that rigour demanded that the thesis be tested against types which offer less simplistic corroboration and belong to contemporary consciousness of public architecture. Significantly Mr Healey's churches and palaces – along with vernacular housing – are the pre-industrial revolution types whose forms camouflage today's functional and spatial meanings. Significantly ... are mute and remain ...

Yours faithfully,
THOMAS A. MARKUS,
Professor of Building Science, University of Strathclyde.

Student loans

Sir, – In his article headed "Developing individually" (*THES*, June 3) Graham Hills predicts an objection from the National Union of Students to his proposal for a voucher scheme to replace the current system of student financial support. He is correct in his prediction of our having an objection, but wrong in his speculation as to its nature.

Our objection would not simply be premised on defending present arrangements; we have repeatedly criticized the current system, and would welcome changes to increase access and increase students' independence, but we do not feel that the changes proposed by Graham Hills will do that. There is no evidence to suggest that the mandatory awards system deters applications from working class students; the reasons for the relatively low participation rate from this group are far more complicated, and rooted more in the biases existing in pre-college education, and the general popular perception of higher education as being the property of "them" rather than "us".

Building maintenance grants into the fees system is extremely dangerous for exactly the reasons hinted at by the author. Unless the fee element was strictly controlled at a national level, the grant element would become part of the "free market" aspect of the scheme, with universities and colleges trying to attract students on the basis of "more grant", necessitating contortions at the fees end in order to run the college at anything resembling a reasonable standard.

The NUS's arguments against any form of loans scheme are well rehearsed; unless a government was prepared to overhaul completely the system of taxation in this country, they would, in every case, mean a system of double taxation, be extremely hard to administer, be devastating in effect on unemployed graduates, and be an actual disincentive to working class students.

Graham Hills's proposals seem to amount to little less than a different means of privatizing the university system, and privatizing the student financial support system, with government aid, but, it would seem, little government control. No mention is made of public sector higher education and although we would agree with many of the criticisms made of the current university system, we cannot believe that any workable or equitable solutions are proposed here.

Yours sincerely,
SARAH VEALE,
Vice President, Welfare, National Union of Students.

Postgraduate appeals

Sir, – In recent months there has been a spate of letters and articles on the subject of postgraduate appeals pointing out the absence of appeal procedures. Most recent examples of this were Alistair Wilson's letter and the article "Reforming PhD appeals" (*THES*, June 10). In addition to the above pressure there has been a groundswell for reform following on the Swinnerton-Dyer report which pointed up the problem of poor completion rates.

The report and other pressure is a recognition that the responsibility for failure is not necessarily the sole responsibility of the student. There is a clear suggestion that the universities must take their share of responsibility for student failure especially in the area of supervision.

If the quality of our higher education is to improve an urgent plea needs to be put in for the explosion of the myth of academic infallibility. Until the universities are able to acknowledge their mistakes and their share of the responsibility for student failure we will continue to experience high rates of wastage.

A major obstacle to change is the refusal of the university authorities to debate the issues. In spite of the many recent calls for reform in the press, no one, least of all the university authorities, has seen fit to disagree with the points being made and defend the status quo. Until open debate takes place and necessary changes are made individual students will be treated unjustly and the quality of our higher education will continue to suffer.

Yours faithfully,
BARRY ADAMS
Jerusalem House,
Orchard Terrace,
Totnes, S. Devon.

School boards

Sir, – Christopher Price's comments (*THES*, June 10) may have the admirable quality of knock-about politics but it is not so clearly obvious that a scheme of school boards in individual London boroughs would necessarily collapse under pressures no more evident than those which have faced excepted districts when coping with coexistence alongside the education committees of counties whose geographical boundaries may appear to surround them.

Furthermore, as an example of devolved power of which Christopher Price is probably well aware, Cambridgeshire's education authority established village colleges before the provision appeared in the 1944 Act. But that was seen as evolution not revolution.

Yours sincerely,
DAVID GILLINGHAM,
170 Minerva Way,
Cambridge.

Moving Marbles

Sir, – Comments on the quest of Melina Mercouri to repatriate the Elgin Marbles (*THES*, June 10) have wrongly applied an analogy with portable works of art. The problem is not fully comparable with the locations of a Renoir or a medieval codex although aesthetically parts of the argument are relevant.

The Elgin Marbles are by contrast directly associated with a physical context. They belong to a structure to which they are integral components, and thus to a particular landscape and environment. The same cannot be said for other "works of art" implicit in the article.

The British Museum appears to have resisted (rightly) any move to transfer the marbles to a Greek museum where they will remain equally out of context. Melina Mercouri should consider the opportunity of more progressive heritage management of the classical landscape and persuade her government that if the marbles are to be reclaimed, then so must the Parthenon. When that happens the British Museum will have more difficulty in resisting.

Yours faithfully,
JOHN HUNTER,
Undergraduate School of Studies in Archaeological Sciences,
University of Bradford.

Letters for publication should arrive by Tuesday morning. They should be as short as possible and written on one side of the paper. The editor reserves the right to cut or amend them if necessary.

Union View

Script for a Tory nightmare

The Conservative Party manifesto did not give much away about plans for higher education. Two short paragraphs placed, ominously for students, under the general heading of The Family, allowing perhaps for the vague construction that the higher education of young people will now fall more heavily on the family budget. That would be consistent with previous government ideas, but it hardly makes for a higher education policy to take us to the end of the 1980s.

There is, of course, the possibility of a hidden manifesto. Something left by Oliver Letwin before he moved on, with a few explanatory paragraphs from Ferdinand Mount on the importance of the family in footing the bill for education. I doubt if this is likely. There is plenty already in the pipeline to satisfy even a Secretary of State like Sir Keith and give him scope for manoeuvre. Through both the University Grants Committee and the National Advisory Board he now has more direct control than any of his predecessors. So what sort of things might make up his programme?

Certainly the NAB process will now continue apace with perhaps a few more ideas added before the autumn. This could be the first opportunity to move on two-year degrees. By the end of the first session of the new Parliament the universities will have to be told their future beyond the plans set out by the UGC in 1981. Besides more restrictions in finance, the opportunity now presents itself for an adventure into privatization.

In student finance we are already promised a review of the grants system, with an examination of students loans making up part of the process. ... mandatory grants, we will have to see. It seems certain that they will try to ignore the gap. Enter the family again. Perhaps.

A great deal of interest must surely now fall on Government attitude to student numbers. The demand for strict controls gave way, in the face of the election, to the claim that the public sector would maintain the Robbins principles of access. The contradictions of this generous attitude to student numbers with all the other stated objects of the Government on controlling finance were as glaring as the policy of the Labour Party on Polaris. They were not, unfortunately, subject to the same public scrutiny and are not likely to be.

If this seems like a pessimistic nightmare, you are right. This is the vision which passed before my eyes in the small hours of Friday morning as I sat glued to the television. Throughout the night I drifted into sleep, and the nightmares that went with it. Unfortunately it turned out to be true that both Christopher Price and Phillip Whitehead had lost their seats leaving a yawning gap in the higher education lobby with no obvious successors. But there was worse to come.

In one nightmare Sir Keith appeared in a Hammer House of Horror rerun of Count Dracula, you know the kind . . . Count Joseph lies buried in his coffin with a stake through his heart . . . the world thinks itself safe . . . along come the innocent electorate and pull out the stake for firewood, little knowing the affect of their action . . . still he remains buried until his obedient followers, who have sacrificed their willpower for eternal life, respond to his powerful intellect – dig him up and carry his coffin off to give him new life and new victims. You know, I swear that coffin was carried by six vice chancellors.

Neil Stewart

The author is president of the National Union of Students.